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THE INCREASE AND PREVENTION OF GLANDERS.

BY W. HUNTING, M.R.C.V.S.

THAT "prevention is better than cure" is an old adage, the truth of which is probably not so forcibly felt by the man whose living depends upon his attempts to cure, as by him who owns or suffers from the evil. Still it is true; and the prevention of disease is an important part of the duties of the veterinarian. Possibly in no disease is prevention of more marked value, or more satisfactory in its results to both practitioner and stock-owner, than in Glanders. Sanitary measures have too long been neglected. In our search for cures we have overlooked means of prevention, or only adopted them under pressure of panic fear. Sanitary science is yet in its infancy; but already it gives signs of equalling in importance and practical usefulness its elder sister, pathology. So far as concerns the contagious diseases of animals, sanitary science is all-important. The cure of individual cases is insignificant in comparison with the total prevention of disease, or even the effectual stamping-out of a wide-spread outbreak. The life-value of our domestic animals can be estimated exactly, and the economy of prevention can be mathematically stated. Veterinary sanitary science, then, is capable of immense development; and, untrammeled by the practical difficulties surrounding human lives and human diseases, we should be able to suggest

and carry out effective measures, if only we are convinced that they are not founded in error. Of course, to carry out sanitary measures with effect, we must have a sound pathological basis to act upon. I say *sound*, but it is not at all necessary that it should be complete. Our pathological knowledge of Glanders is by no means complete; but so far as it goes, it is sound enough to warrant us in adopting energetic preventive measures.

Without dwelling upon the detailed pathology of the disease, I may be permitted to assert that Glanders and Farcy are merely forms of the same disease, and equally dangerous as sources of contagion. Also, that of every hundred cases, ninety-nine are unmistakably due to contagion, and probably the hundredth is traceable to the same cause, if we only could follow the hidden mode of communication. Adopting this view of the nature and cause of Glanders, we may logically conclude that if we can destroy the existing virus, not only in the affected animals, but in the stables and on the other surfaces where it may have been deposited, we shall practically remove the disease from this country. Even granting, for the sake of argument, that a fractional per-centage of cases of Glanders may arise spontaneously, sanitary measures based upon a simple contagious origin will be found as thorough and effective as any human endeavours can hope to be.

That some active steps are necessary is shown by the fact, that the disease is steadily increasing throughout the country. So common is the disease in London, that it is almost impossible to visit a horse-slaughtering establishment without seeing one or more of its victims. And so reckless and dishonest are many horse-owners, that cases of the disease have been sent into and sold at nearly every horse auction in the metropolis. It is not very long since a cavalry regiment was infected; and it is stated that the disease existed amongst the horses engaged in at least one of our autumn manœuvres. Glandered horses are to be found in cab and omnibus yards, and not a few contractors keep the disease constantly in their stables. Not only are glandered horses worked in the streets, but they may be placed with others on the cab-rank, or permitted to use the public watering troughs. So well is this known, and its danger appreciated,

that many cab-drivers are prohibited, under penalty of dismissal, from taking their horses to the drinking troughs. Worse than this, however, is the practice of killing the marked cases of glanders in a stable, and selling the apparently healthy by public auction. This step is only taken when milder means have failed to stop an outbreak; in other words, when the owner feels certain that many of his apparently healthy horses are infected, and will in time develop the symptoms. The symptoms are developed in many of these animals by time, and then they are unsuspected, and stabled with other healthy horses.

Should this state of things be permitted to continue? There can be but one answer: It should not. But how alter it? Have we not already stringent rules and penalties? Are we not assured that these cannot be improved? that the public will not tolerate more inquisitorial functions or greater interference with their business arrangements? We are certainly *told* all this; but we reply, It is mere assertion; and we shall endeavour to show what more might be done, and what advantages we might then reasonably hope to obtain.

At present the Privy Council may permit a local authority to put in force the rules and regulations of the Contagious Diseases Act, or of the Orders in Council since issued. Local authorities, we know too well, are never much interested in this; and so long as they are not compelled to carry out the work properly, so long shall we have Glanders prevalent. But even where the authorities possess the power and the will, very little progress is made. The law says a man shall give notice to the police of his having Glanders in his stud; but I know of no penalty for his not doing so. If he moves the animal into a public place, he is liable to a fine. Now, unless a contagious disease can be caught at the outset, or the centre of contagion itself rendered inert, our repressive measures are always weak and costly. It is absolutely essential that the inspector should possess the power of entering premises, and ordering to be killed any horse he may find suffering from Glanders. It is true, the law now permits a local authority to prevent the movement of all horses out of a stable in which a glandered horse has been standing. This would in many cases be a great hardship,—in fact, it would simply be ruin

to the owner; and yet this clause is law, whilst we are told that granting an inspector the powers of entry I suggest would be resented by the public. Unless Glanders is detected on the premises, we shall never stamp it out; and it can only there be detected by the visits of an inspector, or the report of the owner. To compel the owner to report, we should have a heavy penalty for neglect. To facilitate his compliance, he should be allowed compensation for the loss of any animal presenting a fair chance of recovery. Horse-slaughterers are supposed to make a return of all glandered horses coming into their hands. They do not. They only return such as are sent by the inspectors, and argue that the others are unrecognised by them. We cannot force men to see; but we might prevent them from killing any horse with a discharge from the nose, or with suspicious sores on the body or limbs, until examined by an inspector. This need not interfere with their business at all, if the inspector be ordered to attend the yard every morning. The return of the horse-slaughterer, if made fully, and weekly, would be a great assistance to the inspector in tracing cases. The owners of such animals could be punished either by the existing law, in preventing their other horses from leaving the stable, or better still, by a provision making it penal for them to sell or dispose of any of the stud without the inspector's order. Add to these measures a penalty preventing either owners or any one else from treating Glanders without an inspector's order, and we should have all that was necessary to detect and destroy each centre of contagion, and thus prevent its spread.

The only objection of the slightest weight to be brought against these suggestions is the expense of inspectors. Let us consider the objection in reference to London. Two inspectors would be ample; and say they cost £500 per annum—what is this when we now lose over £5,000 by the ravages of the disease? These two inspectors, armed with the powers I have described, would certainly in two years reduce Glanders to a rare affection, if they did not utterly eradicate it in London.

At present an inspector is powerless. A man may have fifty glandered horses in his stable, and no one can order their destruction. He may sell any other horse out of the stable, not

apparently diseased, although it may be only passing through the stage of incubation. He may work them at night, and need fear no detection, unless some other accident or defect attract a policeman's attention.

But why write more? Surely no one denies the importance of the subject; and I confidently challenge objections to my suggestions.

It would be interesting to inquire why nothing is done by the Privy Council; and whether the public are aware that a disease communicable to man, and utterly incurable,—which causes an annual loss of perhaps £20,000, and which would decimate the horses of our army in the event of a campaign,—whether, I say, the public are aware that this disease is increasing gradually and surely every year. Such an inquiry I must, however, postpone.

"OVARIAN DROPSY" CAUSING MECHANICAL OBSTRUCTION OF THE RECTUM, AND RESULTING IN DEATH.

By D. C. Pallin, M.R.C.V.S., Dublin.

The following case came under my notice within the past few weeks, and will, I hope, prove interesting to the readers of the *Veterinary Journal*:—

On the 19th April last I was called to see a case of supposed inflammation of the bowels in a mare.

On arriving at the place I made inquiries as to the symptoms, and was informed that, at six o'clock that morning, she was found sitting on her haunches in the stable, apparently suffering great pain; and from that time until I saw her, at 2 p.m., she was very restless, frequently lying down, getting up, and rolling about.

I found her pulse greatly accelerated, and the visible mucous membranes slightly injected, with copious perspirations, and frequent ineffectual attempts to defecate.

I made an examination *per rectum*, and at the extreme end of my reach felt a mechanical obstruction, which I took to be caused

by either intussusception or strangulation of the intestine. An enlargement could also be felt with the tips of the fingers, which at the time I considered was caused by an accumulation of fæces, as no evacuation had taken place since the previous evening. I may add that the most minute examination failed to detect the slightest trace of fæces between the anus and the obstruction.

I at once administered a linseed oil drench, followed by small doses of opium and aconite, which of course failed to produce any effect. I then had her walked about slowly, and this appeared to relieve her slightly.

At 4 p.m., seeing no decided improvement, I had her walked to the infirmary—a distance of about two miles. While on the way, she was with difficulty prevented from lying down.

On arriving at the infirmary she was placed in a loose box, where she immediately sat down on her haunches. The pulse meantime had slightly increased, and I observed a tendency to abdominal swelling. To relieve this I gave a drench consisting of carb. ammon. ℥ij, sweet spts. nitre ʒij, and aqua Oj., which had the desired effect.

I made another examination *per rectum*, but with no better success than before. Enemas were given hourly, but were almost immediately expelled.

During this time the urinary organs were in active operation, the fluid being apparently in a normal condition.

She remained in this state for about thirty-eight hours (lying on her side), with no change, save an occasional struggle, and becoming gradually weaker until April 21st, when she died at 7 a.m.

On making a *post-mortem* examination, I found the abdominal viscera in a healthy state, with the exception of the colon and right ovary; the former was highly congested, and charged with hard impacted fæces, as well as much inflamed. The ovary was dropsical and enormously swollen, being nearly eight and a-half inches at the longest diameter. The ovary proper was quite disorganised, and in its centre was found an abscess containing a quantity of inspissated pus.

From its outer wall extended a large sac or capsule, which contained nearly a quart of straw-coloured fluid. This was

found to coagulate on being heated, or on the addition of nitric acid.

The Fallopian tube was very much enlarged, and contained a fluid resembling ichorous pus. The walls of the uterus were thickened, and over its mucous surface patches of inflammation were obvious.

I should have mentioned that the mare was twelve years old, and in good condition. I was unable to ascertain if she had ever been pregnant; but judging from the appearance of the mammary gland, it would appear that she had, at some time or other, given birth to a foal.

Ovarian dropsy is by no means uncommon in the human subject; and the operations of ovariotomy and puncturing have frequently been performed with success. The fatality following such operations is, I believe, about 75 per cent.

SPASMODIC "ROARING."

By T. D. Broad, M.R.C.V.S., Bath.

In January, 1872, a gentleman of this neighbourhood sold a four-year-old off chestnut gelding, believing it to be sound, the horse having been hunted up to the time of sale. On the day of purchase it was taken to Brighton; being very wet, the groom thought the horse had taken cold, as he found, when exercising it a few days after arrival, that it made a noise. It was then shown to Mr. Mannington, veterinary surgeon, who gave an opinion that the horse was a "roarer," but that the sound was of an unusual and spasmodic character. Some correspondence took place, and I was sent to Brighton to examine the horse. After doing so, I quite corroborated Mr. Mannington's opinion, as the "roaring" varied so much in the course of a trial as sometimes to be scarcely perceptible, while at other times it was excessive. After my return to Bath the matter was settled by my clien refunding a part of the purchase-money. The horse was then placed under the care and treatment of Mr. Mannington, and I ascertained from him that it was put into a loose box littered with sawdust; that laxative medicine was given, a long seton

inserted in the submaxillary space, a blister applied from ear to ear, and repeated as often as possible; that, subsequently, he gave it small doses of calomel and opium daily, until the gums became reddened, when another laxative was administered. After a few days the calomel and opium were repeated, the seton being allowed to remain in the neck for five weeks. The horse was then exercised, and it was found that it still made a little noise. By a modification of the same course of treatment, and liberal feeding, with exercise, the "roaring" entirely ceased. Some little time after leaving Mr. Mannington's hospital, the owner brought the horse to Bath, when I had an opportunity of riding and galloping it up hill for a mile, but without being able to detect the slightest noise. In 1873, however, it had a second attack of the same spasmodic affection, and so severely that the noise could be heard sometimes when the horse was only trotting slowly. But in the course of a few weeks it became nearly or quite well, without medical treatment, and was subsequently sent to London and sold for sixty pounds.

FAVUS (PORRIGO SCUTULATA) IN A MOUSE.

In a contemporary medical journal, in 1871 and 1872, we drew attention to the fact that the very disgusting and troublesome parasitic diseases of the human species, named "honeycomb ringworm," "scald-head," etc., may not unfrequently be derived indirectly from mice, which have been observed to be often affected; they transmitting the malady to cats, and these again conveying it to people. In the same journal we gave the results of the extensive observations and experiments made by Professor Saint-Cyr, of the Lyons Veterinary School, which were of the greatest interest and value with regard to the mouse-origin of the disease, and the readiness with which it could be communicated to mankind and various species of animals. We also gave the observations of the very few writers who had up to that period noticed the malady in animals; and we mentioned that some years ago we had seen it in a very severe form amongst tame rabbits.

A few weeks ago, one of the farriers of the Royal Engineers,

in Brompton Barracks, Chatham, brought us a live mouse, which had been caught in one of the soldiers' barrack-rooms. For some time the little creature had been seen at intervals running about the room, and its peculiar appearance had excited the curiosity of the occupants of the apartment; its head had "something" so large growing on it, that when surprised in its wanderings it had the greatest difficulty in pushing itself into the hole in the floor, which formed its point of exit and entrance. Though we had not before met with the disease in mice, yet even a casual glance was sufficient to raise a strong suspicion of its presence in this instance; and from its great extent and severity, as well as owing to the debilitated condition of the mouse, we thought it better to kill the creature at once, in order to satisfy ourselves as to the nature of the affection; this was done by chloroform. We were then able to note that the whole of the right side of the head was covered with a hard, friable, light grey or very pale yellow mass, nearly as large as the head itself, and which, in spreading, had destroyed the eye and ear on the same side, eroded the cheek and chin, laying bare the molar and incisor teeth, and was extending down the breast. The shape of the mass was peculiar and characteristic, and looked as if a number of small biscuit or saucer-shaped masses had become agglomerated on one spot, and increased there. The sharp, thin, bent-up margin of some of these, particularly around the margin of the cluster, was very noticeable. The astonishing feature of the case was the immense aggregation of crusts on such a small space; so closely packed were these, that it almost seemed as if one had grown on the top of the other, like some fungi which one sees vegetating at the roots of trees and on old wood. In order to be assured as to the nature of the growth, I forwarded the body of the mouse to Professor Flower, Curator of the Museum of the Royal College of Surgeons, who gave it to Mr. Goodhart, Pathological Curator, for examination. Mr. Goodhart writes: "I enclose the note that I made in my note-book at the time the specimen you sent to the college was under examination. I think your primary idea of the nature of the disease was the right one, and that it is favus." *Note:* "I examined the white fungating mass on the right side of the head; also a brownish

soft bail about the hairs in front of the thorax, a brownish patch of skin near the left fore extremity, and hairs from the root of the tail. In *none* save in the first two did I find any evidence of disease. A few hairs tended to become brush-like at the free extremities, and one or two fungus spores, such as existed elsewhere, were seen; but they were so few in number, and freely floating, that they were certainly extraneously imported from the main disease. This was composed of small, oval, silk-worm, egg-like spores, which united end to end to form a branching mycelium of rather thick dimensions, such as is shown in the subjoined figure.* It appears to me that the disease is Favus, and that the loss of hair elsewhere may be due to the emaciation consequent on so serious a disease in the head."

It is not at all unlikely that other mice in the barracks may be affected with the disease; and I have instituted a watch-committee in the room in which this specimen was captured, as well as in the adjoining rooms, in the hope of making further discoveries. None of the soldiers who occupied the apartment in which the mouse was caught have shown any symptoms of the disease; and it is scarcely possible that they will, as cleanliness is so rigidly observed among them, and adults are not so susceptible as young persons. Cats are not kept in the rooms.

NOTE.—Since the above description was written, and while this sheet was being corrected, a mouse was caught in another of the barrack-rooms; this was also extensively diseased on the head, and the crusts offered the same configuration and histological elements as in the other case. The specimen was forwarded to the Brown Institution, for the inspection of the authorities. Professor Duguid and Dr. Burdon Sanderson, of that Institution, as well as Dr. Creighton, examined the crusts on the head of this mouse, and were of opinion that there could be no doubt as to the disease being Favus.

This Favus disease in mice appears to be widespread, as it has been often observed on the Continent of Europe, and it has also been reported in America. For instance, at a meeting of the Academy of Natural Sciences of Philadelphia, held in April,

* The drawing evidently represents the elements of *Achorion Schonleinii*, the parasitic fungus of Favus.

1872, Professor Leidy exhibited a mouse with several whitish masses adherent to the ears, side of the face, and nose. The mouse had been caught in the children's department of Blockly Hospital, and was submitted to his examination by one of the attending physicians, Dr. James B. Walker, who had informed him that he had observed a number of mice in the same condition. Dr. Walker had previously informed him of the curious affection of the mice, and it was at his suggestion that the present specimen was caught for examination. The white matter, examined beneath the microscope, proved to be composed of sporular bodies, single, double, or in short chains of a dozen or more. They measured about the $\frac{1}{600}$th of a line in diameter. The fungus was a *Torula* or *Oïdium*, according to Leidy, and resembled that found in aphtha. Perhaps the disease in the mice, he imagined, is the result of feeding upon articles imbued with adherent portions of aphthous matter from the mouths of children, and perhaps also the latter may become affected from diseased mice contaminating food or drink used by the children.

Dr. Le Conte remarked that he had found in his father's house in New York, several years ago, a mouse exhibiting the same fungoid disease, and in the fungi were found specimens of a coleopterous insect of the genus *Lathridius*. The doctor also remarked that in a few days a cutaneous eruption appeared on his own person, which seemed to have been derived from the fungoid disease of the mouse.

The disease has also been observed in rats; and it has been experimentally or accidentally transmitted to dogs, cats, rabbits, and other animals, as well as to mankind.*

* A detailed description of the disease as it appears in quadrupeds and birds will be found in the "Manual of Veterinary Sanitary Science and Police." Saint-Cyr's experiments and observations proved that the parasite could be readily sown and cultivated upon the skin, provided proper subjects and precautions were adopted. The animals under observation were young, and the part selected for growing the fungus was slightly blistered. The Favus dust was then sprinkled over the humid cuticle, and covered with a piece of diachylon plaster to maintain the surface in a damp state favourable to the germination of the parasite. In forty-eight hours the plaster was removed, and it was found that the sown surface, which was on exposure a little moist, soon dried. The epidermis was regenerated; but, instead of forming a continuous layer, smooth and adherent, it became detached, and fell off for several days in the form of different-sized furfuraceous scales. From the eighth to the twelfth day there began to be distinguished on the surface where the Favus dust had been deposited, some little tubercles about the size of a pin's head, grain of millet, or, at the most, a small pea,

ORCHITHLASIS.

By Hippochirurgus.

In addition to the various regimental duties of the Army Veterinary Surgeon in India, who has not only to examine remount horses, and to afford professional advice to committees selected to pass them into the service, he is called upon to attend at the "cattle farms" for the same purposes with respect to remount bullocks, which are bred and employed by the Indian Government for the heavy draught work of the commissariat, arsenals, siege-trains, batteries, marching, etc. Some of these animals, when full grown, attain the height of seventeen hands; whilst fifteen hands (including the hump, or muscular prominence surmounting the wither, and peculiar to Eastern oxen) is considered an ordinary size. They are of enormous substance, and possess immense power in draught.

From 150 to 200 are distributed annually to various military stations from the Government Cattle Farm at Hissar (102 miles from Delhi), and it was here that we had an opportunity of witnessing an operation we have designated *orchithlasis:* more popularly known as "mulling," or crushing of the testicles of the bull by contusive force. Judging from the number of bulls subjected to its influence in India, and from the time it must have been in vogue, it would appear to have long since been estimated as a very practicable, and even recommendable method; yet, scientifically, and more especially humanely speaking, it has nothing to warrant its continuance where practised, or adoption where unknown.

It is, however, an operation bearing directly on veterinary

slightly salient, but hard to the touch, and of a grey colour. At first hemispherical, these tubercles soon became depressed in their centre, their border becoming elevated, and giving them a cupuliform aspect. These were veritable Favi, traversed by a little tuft of bristly hair, only differing from human Favi by their remaining a long time of a dull grey colour.

If the primary Favus crust is removed, it is reproduced very rapidly—sometimes by the following morning; this new crust very distinctly exhibits the sulphur-yellow hue. With time, these Favi increase; others are developed in their vicinity; the nearest soon coalesce by their margin, and then become deformed; at times their central depression is obliterated by the incessant accumulation of new cryptogamic elements, and the cupuliform aspect disappears; but it is very rare indeed that it is not observed sharply defined on the border of the affected part.

surgery, and though rude in the extreme, we cannot disown the connection. For this reason, and on account of its referring to an important question which is at the present moment receiving universal attention and discussion (cruelty to animals by vivisection), it has been deemed not unworthy of record.

The young bulls we saw operated upon were about two years old, and were well developed. Doubtless, their general *physique* and moral behaviour regulate the age selected. The season of the year chosen is temperate, extremes being avoided.

"Mulling" is equivalent to castration, inasmuch as it renders an animal unfit for procreation, and, by partially subduing his natural spirit and passions, makes him docile, tractable, and subservient. In the former operation the testes are not removed, the term itself implying the act of beating or crushing. This is practised in most, if not in all parts of India, and in other Eastern countries, in the ox tribe, and seems to be the only recognised *modus operandi* by private owners, as well as by Government. We recollect only one case as practised on the horse, and know it is seldom adopted.

By expert hands the operation is quickly performed, the method of procedure being as follows:—

A number of unhandled bulls are driven into a walled enclosure, the entrance of which is secured by strong bars lashed together. The top of the wall, ten or twelve feet high, is reached at various points from the inside by ladders, which afford ready means to the attendants of escape in case of danger. Several men enter the enclosure, and the first victim is dexterously lassoed, and brought to the entrance, where he is cast; his feet having been tied together and drawn well forward, he is placed upon his back, and retained in that position.

A slip noose is passed over the scrotum and its contents, and run tightly up to embrace the spermatic cord and tegumentary covering. An assistant draws on this ligature until the strangulated organs rest firmly on the left thigh, so that the right testicle presents a bold face to the operator, who stands opposite his assistant, armed with a slightly curved staff of heavy wood, about two feet long, and having a diameter of an inch and a-half. Its convex face is the contusing one. The testicle, being

held in a favourable position, is dealt a smart blow, and its integrity is in most cases destroyed without a second application. The right testicle is similarly treated on the left thigh.

Total demolition of the scrotal contents is ensured by their being rapped with the staff from side to side. The spermatic cord above the ligature is then well beaten as it lies on the flat of the animal's leg; and a little grease having been applied to the scrotum, the operation is complete, nothing but a soft, fluctuating, jellied mass remaining.

The poor animal, owing to fright, general excitement, and confinement, appears to bear the brutal operation with extraordinary patience; but as soon as released, rises, and gazing about him in a frantic state of bewilderment, infuriated by the torture he has just undergone, lowers his head, bellows, and makes a furious charge at the first man he sees, the result of which is that his head and horns come in violent contact with the wall, his intended victim having made good his escape by one of the ladders alluded to. Again, and perhaps a third time, he will charge, making his final attack on the entrance, dispersing the crowd, and severely trying the bars. By this time he is well-nigh stunned, slinks in amongst the herd, subsides into quietness, and is no more to be feared.

Curious to relate, the "altered" bull makes no attack upon his own kith and kin, but seeks out his biped offenders. Fatal accidents to human life, I believe, have happened when due precautions have been neglected, and it is not difficult to see how a false step on the ladder, or delay in retreating, could bring about fatal results. We had no opportunity of noting the local and constitutional disturbances set up, and thought "mulling" savoured too much of brutality, and too little of science, to wish to witness it again, or to perform it. One may judge of the acute suffering experienced by calling to mind a gentle tap from a cricket ball on the testes.

After careful inquiry, we were told that the bulls suffered very little; that one was seldom or never lost; that "mulling" did not even take them off their feed; and that no subsequent treatment was requisite. Moreover, we learnt that *no* swelling supervened, but took this *cum grano;* for in the case of the

horse the tumefaction was immense, and it can hardly be imagined that such vascular and highly sensitive organs as testes can be so much damaged in any animal *in situ* without participating in the ordinary results of contusive influences. The ultimate structural effect is, of course, diminution of all injured tissues, and to such an extent, that nothing but a teat-like rudimentary scrotum remains.

Now, there can be no doubt but that any operation performed to render an animal unable to reproduce his species, either by destruction or removal of the testicles, must necessarily produce great pain, unless the patient be subjected to anæsthesia; and that of all the numerous methods adopted to attain this end, the mulling, crushing, or beating of the testes and spermatic cord into a shapeless pulp must be the most excruciating, and unworthy of the countenance of veterinary science of the present day. We have never known a veterinary surgeon perform the operation, and feel sure he would oppose it; and it may be as well to remark, in passing, that veterinary surgeons are neither superintendents of these "cattle farms," nor are they otherwise employed there excepting as referred to: the medical and surgical care of hundreds and hundreds of valuable cattle devolves upon ill-informed and untrained natives, under the surveillance of those who ought to possess special qualifications for the post, but who evidently do not.

We have been informed that certain impracticabilities attend other methods of emasculating the Government bulls, but we do not entertain such a rash idea. There may be more trouble given in the after-treatment of bulls castrated by excision, etc., for which provision is not made: as in the horse studs, where the services of the veterinary surgeon and of a trained staff of natives are indispensable, and a veterinary hospital a *sine quâ non*. The impracticabilities are mostly embodied in the word *trouble*, and this being so, the poor dumb animal is the sufferer.

Custom (*dustoor*), one of India's greatest blockades to progress, no matter in what department, has established "mulling;" and national apathy and prejudice would carry it on to the end of time, unless Government were induced to discontinue the practice in its own farms, and either by persuasion or law—the

latter being better understood—to suppress it amongst private owners. There are some whose feelings are hardened by the habit of witnessing and sanctioning the operation, and who smiled at our delicate sentimentality; yet there are others, who, seeing it with us for the first time, shuddered at so revolting and disgusting a spectacle.

We are acquainted with no operation, human or veterinary, so calculated to impress us with the idea of pain and suffering of the most sickening nature as orchithlasis, and therefore hesitate not to state that, on the score of humanity, the practice should be discontinued.

VETERINARY PRACTICE IN INDIA.

BY STAFF VETERINARY SURGEON J. COLLINS, LATE INSPECTING VETERINARY SURGEON, BOMBAY PRESIDENCY.

CASTRATION and diseases of the testicle and cord, also affections in connection with the inguinal canal, occupy a good deal of the attention, and often tax to the utmost the skill and dexterity, of the practitioner in India.

In England this branch of veterinary practice is comparatively of little moment, for the reason that all colts are operated upon when young; the operation is, in consequence, insignificant. Also, from the testicles having been removed, horses in England are free from affections of these glands and their attached spermatic cords. For the same reason, inguinal and scrotal hernia is unknown. But it will be found in India, from the circumstance of the stallion being so universally employed—there being few mares—that they are occasionally subject to diseases of a formidable character. Again from the horses brought for castration being for the most part past the age of *colthood*, complications during the operation are of common occurrence, and require prompt decision.

From the very limited time which the veterinary student has of acquiring a practical knowledge of his profession when attending college, he will, unless he has had previous experience in handling and operating upon horses, here find himself consider-

ably embarrassed; and it is at times painful to observe the hesitation and distressing position in which the young practitioner is sometimes placed, from simple ignorance of the practical details of his profession under these, to him, novel conditions.

The castration of horses is generally adopted in Europe, America, the Australian colonies, and at the Cape of Good Hope, Natal, etc.

It will be found that, at the present day, the horses of the world may conveniently be divided into two great classes or types, viz., the European and the Asiatic. The principal of the one is the English horse, of the other the Arab; each is the best of his class, and from this all the others may be considered as having descended. In temperate climates, the English horse is resorted to for the purpose of improving a breed; in the tropics and adjacent hot countries, the Arab horse is made use of for the same purpose.

It will be found that, with the European type, castration is generally adopted; with the Asiatic type it is not. The reason is this: the European type of horse is found to flourish only in countries possessing a temperate climate, where there is pasturage all the year round (in the tropics he degenerates, and finally disappears). The colts are "cut" when young, so as to permit their being turned out to pasture with the fillies until three or four years old, when they are taken up for work. The Asiatic horse, on the other hand, is reared in tropical countries, where the pasturage is very limited and scant; consequently the young colts are brought up close to the breeder's hovel, or tent, either in confinement or securely hobbled, so that he has no opportunities for becoming troublesome or mischievous, and is therefore not "cut."

Like the Arab, the English thoroughbred colt, after attaining the age of twelve months, is for the most part reared in confinement, and remains "uncut," but for a different reason.

Within the last five years a large number of cart stallions have been imported into England, principally from Belgium and France, for general draught purposes; and there appears to be a growing tendency on the Continent to leave this description of

horse "entire." If so, they must provide separate pastures for the colts. Many of these horses may be seen working in the streets of London, and other large towns, every day. This opens, again, a question which for a long time has been considered as finally settled; that is, whether the horse in his entire state is capable of greater fatigue—in short, is better *all round*,—than he would be if castrated. If there were any great marked difference, the question would not be in dispute; but at the present day, from the enhanced price of horses, any difference, however small, becomes an object of importance. Some owners aver emphatically that, in every respect, the stallion is the most desirable animal. If so, then will the stallion for draught purposes assuredly carry the day, and veterinary practitioners in England may expect to meet with a class of diseases to which they have hitherto been unaccustomed.

It is likely that, with the phlegmatic temperament of the cart horse, slow in movement, and not easily excited, the fact of his being entire may not lead to unpleasant or troublesome results, especially if he is not worked or stabled with mares. It has been shown that well-bred stallions will often go quietly together; in India it is a common practice, but in that country there are few mares. As a rule, with the finer breeds of horses for ordinary saddle and harness work, and for the army generally, where mares are so largely employed, the stallion would be troublesome, dangerous, and out of place. On the turf, again, the employment of stallions is immaterial, as they only come into anything like contact when at exercise or when running.

The Asiatics have a strong prejudice against castrating horses, the Arabs and Persians particularly. When talking to them on this subject, they express a very decided opinion that the stallion is more courageous, and possesses greater powers of endurance, than the gelding;* many officers of experience in India hold the

* (In an Arabic treatise on horses, written about the twelfth century, and entitled, "El Naceri," there is a dissertation on this subject, from which it appears that in general, at that period, castration (*iksa*) was disapproved of by the doctors of medicine, as well as of faith. The Prophet had forbidden that any one should destroy the sources of posterity. The sayings ascribed to him on this account are many, and one of his privileged wives is credited with the statement that the Prophet had prohibited the emasculation of horses. The opinions of his priests up to the date of the treatise, show that the prohibition was a religious one, though its painfulness was also alluded

same views. Considering how conservative the natives are, and how religiously they adhere to the traditions and habits of ages, and also considering that the gelding has never had a trial with them; however much we may be inclined to respect, in a matter of this kind, the custom of centuries, yet their opinions do not stand the test of experiment and the practical experience of the present day, even in the East, on their own ground, as has been found in India. With regard to the officers, they affirm that the

to by the Prophet as a minor reason for discountenancing it. Some priests, however, saw its utility in certain circumstances. One named Hassan, on being asked what he thought about castrating horses, replied that there was no harm in doing so, as if they were left entire and at liberty they would eat each other. And another said that it was justifiable to "cut" those horses which were inclined to bite and be vicious. El-Baihaky taught that castration should be authorised when it had a rational and useful aim; but the castration of horses of good race or pure blood was not to be tolerated.

With regard to the doctors, it would seem that at times they looked upon the operation as permissible from two points of view—utility, and as a medication. With regard to the latter, they believed emasculation advantageous in such maladies as vertigo, convulsions of a rabiform kind or due to encephalitis, nephritic disorders, and brittle hoofs.

With respect to practical utility, this ancient writer adds that the operation is equally justifiable. Sovereigns, princes, and warriors sought skilled men to emasculate their horses, in order to suppress their neighing and cries, especially during war time, when concealment was often necessary. Castrated horses were the best for ambuscades and reconnoitring, it was said, because they possessed more resistance and endurance, and were the best guarantee and security in expeditions. "Horses of an inferior nature and castrated," says Ibrahim, an older writer still, "are for ambuscades and surprises, for they do not neigh; they have no cries nor voice; they better withstand marching, fatigue, hunger, and thirst. But in line of battle, in strong places, in racing, in armed masses, in conflicts and skirmishes, and for all field work and grand manœuvres of war, entire horses are to be preferred."

The writer thinks that, beyond the four conditions he has mentioned, castration is not acceptable. "To conform to the prescription of the Prophet in all things is preferable and most meritorious." He mentions that the most favourable seasons for performing the operation were the spring and autumn. On the day it was practised the animal got no food, and the day after a little nitre was thrown into its food or water. Castration was not to be performed until the horse had all its permanent teeth.

The operation was performed in four different modes:—1. The cautery to expose the testicles, when the vessels and spermatic cord being seized in clams made of the date palm, the glands were removed by a sharp hot iron, and some drops of black pitch applied to the vessels to check hæmorrhage. 2. Exposing the testicles by means of the knife, and removing them by means of the clams and cautery; a suspensory bandage was afterwards employed to prevent the entrance of the air. 3. Bruising and crushing the cords by means of the fingers, until they were relaxed and flaccid, or crushing and biting them with the teeth, then applying a tight clam over all for a day and night, when the testicles become completely detached. 4. Exposing the testicles, isolating them from all their surrounding membranes, then rolling each cord round a stick until it is torn away from its origin inside the animal; the wound is then dressed with oil, and a suspensory bandage applied to prevent the direct action of the air. The latter mode was truly a slow and painful operation, as the Arab writer admits, and he was of opinion that it was more suitable for bulls and rams than horses.—*Editor, V. J.*)

gelding will not face the stallion in action; but they cannot adduce an instance of this: the difficulty in our Indian wars has been to get the enemy to come face to face. Reasoning from analogy, all the arguments are on the side of the natives, but practical proof brings matters nearly level. With them it would appear to be a sentimental and humane view of the question.

From many years' experience of both geldings and stallions in different countries, the writer is of opinion that the general military services of cavalry and artillery of the present day are better performed by geldings than by stallions.

Many country-bred horses in India—also imported Afghan, Turkistan, and Persian stallions—are extremely vicious and dangerous, and it is often necessary to castrate them on this account. When loose, they are at times very dangerous, and are quite as formidable with their teeth as with their heels.

Stallions, when loose, invariably commence their attack with their teeth; and if their victim is tied up in the "lines," as is usually the case, and unable to defend himself, the assailant will fasten on, and worry him to his heart's content. He generally fixes his teeth in the crest, point of the shoulder, or fore-leg, and in a short time will produce frightful wounds. If mounted or tied up, he will watch the approach of another horse, and lash out his hind-limbs to the utmost. In this way broken legs are often caused, as well as severe injuries to the rider. It therefore becomes necessary to use extra precautions with stallions, so as to keep them securely fastened with strong head and heel-ropes. For the same reason, they require greater care and circumspection in dealing with them under all circumstances.

With well-bred Arab horses this is by no means the case; these high-caste animals are wonderfully docile, and indifferent to other horses, even mares; at the stud they cannot at times be induced to look at a mare.

Under-bred stallions of any country are invariably the most vicious, noisy, and troublesome; by castration they are rendered quiet, and become useful servants.

During the Crimean war, a regiment of cavalry arrived from India, mounted on Arab and Persian stallions. The ordinary picketing gear was insufficient to hold them; they were in

consequence frequently loose, to the great danger of horses and equestrians in camp. It was pitiable to see, when turning out to water the horses, how the men were thrown and knocked about in their endeavours to lead these excitable animals, and many serious accidents resulted. The end was an order to castrate the whole.

The geldings are found to be more manageable, less vicious, and they work quieter together than do stallions. After a day's march, the gelding will remain quiet, and rest himself, the stallion will not; he is often restless and excitable, and if loose, will upset and make all the horses in camp unsteady. In a regiment mounted on geldings, the work of the men is greatly saved; for one man can lead one or two horses, whilst every stallion requires a man to attend on him.

Another important advantage would follow from the general castration of all horses in the East; that is, *it would tend greatly to improve the breed.* At the present time every village pony or worthless horse has the power, and generally a strong inclination, to transmit his worthless qualities. The practice of castration should therefore be encouraged as much as possible.

Although the natives have such a strong prejudice against emasculating the horse, no such prejudice exists with regard to their working cattle. The East is essentially the land of the ox. India, if she cannot show good horses, can display some of the finest breeds of oxen in the world; as examples we have the Mysore, Goozerat, Marwar, etc. They do all the work in the fields and on the roads, in plough and in cart. It is more than probable that this favourable state with regard to cattle has been greatly aided by the general practice of castration,—the best bulls only, through many ages, having been retained for breeding purposes. The custom is to operate upon them when young—not by extraction, but by destroying the structure of the testicles by external force.

Of late years, the praccice in the artillery and regular cavalry in India has been to castrate all stallions as soon as they join their corps. In the Madras Presidency this is carried out at the remount depot, previous to their being sent to their regiments or batteries. In Bengal, including the North-West Provinces and

Punjab, a large number of imported Australian geldings and mares are provided for the army; so that veterinary surgeons serving in those provinces may not have much regimental work of this description to perform. In the Bombay Presidency the Persian and Arab remounts are "cut" on joining their different corps. Several irregular cavalry regiments are still mounted on stallions. But in all parts of India there is a numerous class, not in military employ, who seek the aid of the army veterinary surgeon, and who prefer the Arab or Persian entire horse to the colonial or country-bred; also racing men, officers generally, for their own riding, as well as the native princes, chiefs, and gentry.

All remounts join at the age of four, five, or six years; and, as before stated, if entire, are operated upon forthwith; other horses, the property of the classes above mentioned, are generally castrated for vice. A stallion may be quiet and docile for years, and then become troublesome or vicious; or he may be quiet for saddle purposes, but vicious in harness. It is from these classes, numerous in India, that the aged horses are brought for operation. It is also necessary to operate for large scrotal hernia, strangulated hernia, and in some cases for loss of condition; for the gelding will invariably be found to be fatter than the stallion.

(*To be continued.*)

LECTURES ON SOUNDNESS IN HORSES.

Delivered in the Veterinary College, Edinburgh, during the Summer of 1874, by Professor FEARNLEY, *late Principal and Professor of Veterinary Surgery in the College.*

GENTLEMEN,—It is customary, on delivering the first lecture of a course, to refer the students attending the class to the best text-books on the subject; but, unfortunately for me and for you, there are no works at all on the matter which is to occupy our attention now; so that you will have to rely entirely on what you hear and see, and take notes as best you may.

There is possibly no subject in connection with horses of

more importance than their examination as to soundness and fitness; and I venture to assert that if the same spirit for specialism existed in our profession as obtains so conspicuously in the sister profession, we should have had a hundred workers in the field, each with his book, and that book containing the same matter, in another form, of every other book on the same subject, embodying the one idea—too often forced—which has acted as the excuse for its author.

Without further comment we will, if you please, take a general view of the ground we propose going over, and then enter into particulars; the importance of which must be ever present before you, in order that what may seem to you trivial and of little importance may not be overlooked or passed by lightly.

You will be called upon frequently in your professional career to decide, not upon the particular ailment, its causes, effects, and probable termination, from which an animal may be suffering; but upon the far weightier question, in many cases, as to whether the horse is or is not in sound health in wind and limb, and if not, as to how far he is unsound, and how far the unsoundness is likely to interfere with those duties which are to be expected of him. So that you see there is this difference in the latter case as compared with the former, you have a patient which is likely to live, and be a living testimony to the truth or error of your prognosis. But this is not all: your mistakes, if any, will too often be set down for something worse, and your actions will not seldom be interpreted as dishonesties. Such, then, being the importance of the duties you will have to perform hereafter, I hope the remarks which may fall from me may at least point out the thousands of pitfalls which beset every young veterinary practitioner who attempts the examination of a horse as to soundness. I shall make it no part of my duty to instruct you how to examine a horse under unfavourable conditions, such as we meet at a sale or in an open market, but at once proceed to give as clear an account as it is in my power to frame of the most exact method I know of ascertaining the soundness of a horse. Method is a thing which I wish particularly to draw your attention to. For any veterinarian to attempt the task

without method is a folly which will as often land him in difficulties as not. Science does not recognise slipshod work, and if you are to perform the task of going over ground beset with so many hidden pitfalls, you will either have to follow the path which I, or some other who knows the road, am about to point out to you, or find it for yourselves, and in doing so find it after repeated and humiliating failures that may spread over one-third —as it too often does—of professional life. After you have traversed this beaten track for years, you will still be unable to leave it with safety, although sorely and often tempted to do so.

Of course, there are numbers of cases brought to us for examination where we see flaws at once, and where we can in one minute give a sound opinion: and there are times when we have not an opportunity of making a thorough examination,—then there is every excuse for any but the most glaring errors; but, even in these cases, we are bound in honour to take every advantage which offers. There are more methods than one; indeed, you will hardly ever find two veterinarians have the same way of going about the task; but a method of some kind you must have, and if it be imperfect, you must study to perfect it; but whatever it is, you must follow it always, if you wish to avoid mistakes. The one I have followed, and which has seldom led me wrong, is the one taught at this college by the late Professor Dick. It consists of, or rather is capable of being considered under, three divisions: 1. Seeing a horse for as long a time as possible in his stable; 2. Seeing him and feeling his several points when standing on level ground outside the stable; and 3. Seeing him in his various paces, and watching and listening to his respiration, and afterwards removing his fore shoes.

Just a word as to the class of horse we must take for our example. Fortunately the hunter will do for our type. There is nothing in the world a horse can do which we do not find the hunter capable of. He sadly too often sees all sides of horse life, and fills all situations creditably: indeed, the hunter is wrong nowhere where the services of the horse are required; so that we will, if you please, take as our type a hunter standing fifteen-two and up to thirteen stone across country. Every

point of any value which a man has to look to in purchasing a horse has to be well looked to in the type we propose to take—eyesight, wind, limb, everything. Suppose such a horse is for examination: look at him in a stall, if possible in his own stall, and spend ten minutes in seeing *what* he is doing, and *how* he is doing it. It not unfrequently happens that the very tying of the horse is objectionable, and has to be rectified; he is often tied short for various reasons, so that your first care is to have the horse tied so that he may have plenty of liberty. We may often learn a great deal by merely looking at a horse as he stands in his stall; but watching a horse for some time is of the greatest importance to us in making a thorough examination.

"Crib-biting," "weaving," and position in standing, are what we are for the most part looking for. Crib-biting can only be practised when the horse has something to pull at; but if he be more accomplished, he will be able to "suck wind," as it is called, by elevating his head, and having nothing to grasp. As veterinary surgeons, you have little to do with vice, and these come under that head; but it is always to your advantage to get every information you can about any horse you examine, and both "cribbing" and "wind-sucking" are, or lead to, real unsoundness. Crib-biting is at first a nervous disease, and may be the result of imitation; or it may result *de novo* from gastric discomfort long continued or frequently repeated, and which is brought about by any of the forms of indigestion. Crib-biting is very objectionable. The victim of it imparts it, through imitation, to others, and injures his own teeth, and his digestive track generally, directly he begins to "suck wind." It is truly astonishing how soon these diseases of imitation are contracted. I at one time rode a white pony for six months, during which period I scarcely could tire him; when one day I had the misfortune to tie him in a stable alongside a "criber:" he certainly was not in the stable more than twenty minutes, but from that day he began to "crib." This at first was of little consequence, but in a very short time—certainly in less than six weeks—he began to "suck wind;" then every time I wanted him he was full of wind, and for the first mile or two on the road he was wet all over with perspiration, and he could not be kept in

condition. Watching a horse in the stable will not at all times detect this. Sometimes a horse may be for hours, or for days, without the habit; but we have still another way of detecting it, which I shall mention afterwards, of looking at the incisor teeth for their being broken and worn, and at the top of the neck for marks made by the cribbing strap.

"Weaving" is a vice which may generally be detected by watching a horse in the stable. This, like the last, is a nervous habit which is very objectionable, as it keeps the fore-legs in a constant state of wear when they should be at rest; so that they are very much sooner worn out. Upon the whole, it is even more objectionable than crib-biting, and should you fail to detect it while in the stable, your chance of doing so is remote, as it leaves no marks that can be distinguished from the ordinary wear of the fore-legs. The horse's attitude you must pay particular attention to. He, like ourselves, often "stands at ease" with his hind-legs, but never rests the fore-legs unless from disease; so that a horse not standing equally on both fore-legs should immediately arrest your attention, and arouse your suspicions. When lame before, and resting the limb, he will either "point" by throwing the foot forward under the manger, as in Navicular disease, or he will swing the limb—let it hang, as it were, from his side; but in any case, if he rest a fore-limb, you must not only note the attitude, but the limb "near" or "off," so as to examine it very particularly when he is outside the stable.

It frequently happens that a very slight amount of lameness may be detected in this way, when it would be overlooked at any other time. In the stable there is nothing to excite the horse; he is doing what he finds most comfortable, and favouring his weak points, if he has any. With regard to the hind-limbs, nothing so definite can be said. Here there are fruitful sources of error. It is quite natural for a horse to rest his hind-limbs one at a time, and the attitude is familiar to every stableman. But he may be lame on a hind-leg; and what is more, he may be standing upon it, and resting the sound leg, on account of his having stood so long upon the latter as to tire it, and make it painful; so that nothing short of an unusual attitude or some visible defect can justify your coming to any

definite conclusion with regard to the hind-legs, seen merely in the stable.

If you have spent ten minutes very quietly watching, and, provided there is no disturbance, have seen nothing unusual, you may now make the horse "stand over" briskly in his stall, and watch for evidences of "spavin" or "stringhalt." It is not the best situation for seeing either; but we can frequently detect them in this way, and we should resort to all the means of detecting disease we know. There are sources of error here which have to be attended to, with regard to this test for "stringhalt." If a horse has been used to standing deeply in new straw, he will get into the habit of catching up his feet higher than usual when "standing over," even though there should be at the time no straw at all. Of course, such an occurrence is rare; but it is these rare occurrences that are so apt to be overlooked. "Spavin" is by no means rarely detected under these circumstances, and when it can be detected under no others. You will read of, and be told of, such a thing as "latent spavin." We all know what latent disease is, but latent "spavin," I may tell you, is that form of lameness referable to the hock, when nothing can be either seen or felt, and which only manifests itself occasionally; but when it does, the symptoms are unmistakably those of "spavin."

If you are quite satisfied with what you have seen in the stable, you then have the horse brought out. In doing so it is best, if you have your choice, to have a snaffle bridle put on; but before the horse leaves the stable you had better examine his eyes. There is no contrivance so good for examining the eyes as a "top light," which we often find over a stable door. Bring the horse quite up to the door, and shut it. By this means you can examine the anterior half of the eyes thoroughly, and it is seldom we want to examine the posterior half—the fundus—which we can only do by means of the ophthalmoscope. The first thing in examining the eyes is to see that they are of equal size. Repeated attacks of Ophthalmia leave the eye smaller than its fellow, together with other serious changes. One attack usually leaves behind it very perceptible changes, of which the fore-mentioned diminution in size is one. The smaller eye will

also show signs of previous disease in the shape of the pupil; the iris being involved, we not unfrequently have adhesion of its posterior part to the lens. This usually is only partial; so that on contraction of the iris, the part adherent does not move, and so alters the general outline of the margin of the pupil. To see this to the greatest perfection, place both hands gently over the eyes, so as to exclude the light, and on quickly uncovering and observing the affected eye, the impaired movement of the iris may be seen. Often it happens that the iris has been adherent to the lens, and the adhesions have given way and liberated the iris. When this is so, we may generally see bits of iris adherent to the lens, and the pupil ragged in that locality, and showing evidence of being torn. The tension of the two eyes is also altered after a severe Ophthalmia. To try the tension, rest the three last fingers of both hands upon the eyebrow, and then press your index fingers alternately upon the globe of the eye—covered by the upper lid, of course—and compare the resistance of the two eyes. The first healthy pair of eyes you come across do this, and once feel the tension effectually, and you are not likely to ever forget it. This knowledge of the feel of normal tension is quite necessary, because it may happen that you come across both eyes of the same horse with abnormal hardness or softness; but this is seldom the case. What commonly happens—probably in nineteen cases out of twenty—is that one eye only is showing signs of a previous Ophthalmia, and you have the other eye to compare it with. But, as I have before said, when once you feel the tension of a sound eye, you never forget the peculiar elastic feeling of resistance which it gives.

Editorial.

EXPLANATION.

To those who are well acquainted with the position of Veterinary Medicine in this country, no explanation can be necessary to account for the appearance of the VETERINARY JOURNAL. But to those who are not versed in its history, and who may not be fully cognizant of its present position, a few words of introduction may be essential, and may prevent misapprehension as to our motives and intentions.

For a number of years, the great majority, if not all, of the members of the Veterinary profession have felt that neither their views nor their interests have been adequately or fairly represented, owing to the absence of an independent journal that would serve as a medium through which their opinions and grievances might be made known; and which, by stimulating and assisting combined action, would materially promote professional advancement.

It has also been equally felt that Veterinary Science was quite as inadequately represented in its more modern aspect; and it has become a matter of general remark, that some of the more advanced and experienced practitioners rarely, if ever, record their observations, possibly for the reason just alluded to.

It is needless to add that the result has been most unsatisfactory and injurious, perhaps no less to the Veterinary profession and to Veterinary medicine than to the public interests, which are to a greater or less degree identified with our department of Science. And recent events have amply testified that if the profession is desirous of maintaining its corporate character, without which it cannot exist as an independent body, nor yet make the most trifling advancement towards attaining its proper position, it must have an organ which will represent it and its claims; while Veterinary Science, to prove that it is progressive, and aspires to rank with the kindred sciences which have so largely benefited humanity, must show what it has done, as well as what it can and will do when fostered and encouraged, and for this it requires the same means of publicity. For years

we have been deeply conscious of the fact that our professional progress and condition are entirely dependent upon that of our science, and that the latter, again, relies solely for its promotion and enhancement upon the abilities, culture, patience, and devotion of those who make it their life-study.

Our motives in undertaking the task of issuing the VETERINARY JOURNAL are founded upon the conviction that it is urgently required to carry the above views into active and beneficial operation; and our intentions are to effect this to the best of our ability. Our professional independence, and our attachment to a science whose perfecting we have never ceased to advocate and promote for now nearly a quarter of a century, will, we trust, be a guarantee of our resolve to accomplish all that may be in our power to achieve.

We have no object to attain but the elevation of the Veterinary profession to the position it should and must occupy; we have no interests to seek save those upon which the advancement of Veterinary Science depends, and which we are determined to maintain and enhance.

The organ of no teaching school, we shall make it our aim to show the community of interests existing between these and the Body Corporate, and through the latter the profession. To seek the aggrandisement of a school at the expense of the latter is a manifest and pernicious wrong, and would not be tolerated for a moment; while any attempt to elevate Veterinary Medicine without to some extent consulting the interests of the schools would, in this country at present, prove a difficult task.

In endeavouring to carry out to its uttermost limits the serious mission we have imposed upon ourselves, we appeal with confidence for the aid and countenance of those who are actuated by the same spirit, and devoted by the same impulses, to the interests of our Science—present and future.

THE CLAIMS OF VETERINARY SCIENCE.

NOT much more than half a century ago, it may truthfully be said that Veterinary Science had no existence in English-

speaking countries, and that the farriery of not long since consisted in the practice of a few operations, for the successful performance of which scarcely any knowledge of anatomy or the principles of surgery were required; or the administration of an incongruous compound of drugs, the action of which was little understood, for the removal of diseases the nature of which was shrouded in mystery. Gradually the management of operations and the treatment of animal maladies were removed from the domain of the roadside shoer of horses, and entrusted to men who had undergone a certain, though far too brief, course of study, based chiefly on the medicine of the higher animal—man. But in this country, until within a very few years ago, the chief, if not the sole aim of all medical teaching in this direction, rudimentary as it was and is, appeared to be the *cure* of disease. In some quarters this is still all that is considered necessary to constitute a claim to the title of Veterinary Surgeon, and the only achievement to be realized in Veterinary Medicine. What this exceedingly narrow view, due to ignorance and defective education, has cost the country in money and inconvenience, and what torture and distress it has been the cause of heaping upon animals, is entirely beyond computation or conception. The history of the Cattle Plague in this country in 1865-66, may be cited as an instance of the results of a search for a cure.

Veterinary Science is only a recent addition to that fast accumulating list with which modern intellectual progress is endowing our age and our civilisation. While still recognising that the cure of disease is a most important and beneficial object to be attained—in a utilitarian and humane point of view—and worthy of the greatest attention and the employment of every possible means which man can borrow from the experience of years and the resources of Art, yet it must be confessed that this is not all that Veterinary Science seeks to do, nor yet the highest of her claims. So far as the domesticated animals are concerned, she seeks to protect them from disease, to hinder its invasion and to check its development, to prevent inefficiency, or to remedy it when present; and this, it must be acknowledged, should constitute one of her strongest claims to recognition as a useful science.

In addition to this, Veterinary Science can lend the most powerful aid in the improvement and multiplication of these animals, whose perfecting and well-being are so necessary to man, and whose value is every day becoming so exalted. Upon the principles which this science alone can furnish, must, in the future, greatly depend the successful amelioration and utilisation of these creatures.

With regard to Comparative, and even to Human pathology, Veterinary Science must every day assume greater importance. Not only are some of the most harassing and fatal diseases of animals transmissible to our own species, and not only is mankind dependent upon several of these animals for food (through which disease may be conveyed) and most essential services, but the intimate nature of some of the mysterious and deadly maladies which haunt ourselves, and those occult and complex processes upon which abnormal phenomena mainly depend, can only be elucidated by means of the aid which our science affords. Modern pathology is largely indebted to Veterinary Science for the assistance it has already yielded; and as Human and Comparative pathology become more intimately allied, so in direct proportion will mankind benefit.

Utility and *science* are, then, closely related in all that concerns the theory and practice of our profession. But with these there is yet another, and perhaps a more deeply impressive and sacred object which the skilled veterinarian has always before him in the pursuit of his science, and that is ***humanity***. The veterinary profession, of all others, is perhaps the one in which humanity should be a leading feature, and the one which can confer the greatest benefit on animals. To preserve dumb creatures from disease and pain, or to relieve them from suffering and distress, is surely a most grateful and holy service, and one which must ennoble the heart of man. Veterinary Science in its very essence is a science of humanity, and does for speechless and helpless creatures what the sister science does for man. The profession of the Veterinary Surgeon therefore claims for its motto, SCIENCE, HUMANITY, and UTILITY.

THE PRESIDENT OF THE ROYAL COLLEGE OF VETERINARY SURGEONS FOR 1875-76.

THE election of Colonel Sir Frederick Fitzwygram, Bart., as President of the Royal College of Veterinary Surgeons for 1875-76, cannot fail to be a source of satisfaction and congratulation to the entire body of the profession. It must be confessed that for some years a feeling of indifference, if not of apathy, has been manifesting itself with regard to the annual election of a member of the Body Corporate to fill this important and honourable office; and it has even been hinted that it was dwindling into a mere formal business of proposing an obliging or other kind of friend, and mustering other friends to vote for him, without much inquiry on the part of the Council as to his qualifications for the Presidential chair, his loyalty to the profession, or the motives of those who may have proposed him. Recent events would appear to have brought about a very salutary reaction to this somewhat slipshod way of carrying out a most important duty, so far as the interests of the profession are concerned; and it is to be hoped that the results of the reaction may be permanent; for nothing can be more injurious—nay, dangerous—to the welfare of our corporation, and through it to the profession, than an injudicious selection of officers. The claims to these honourable distinctions cannot, therefore, be too minutely scanned. In this instance, the election will bear the closest scrutiny. The newly appointed President has every claim to this, the highest distinction which the Veterinary profession in this country can confer. No one connected in any way with Veterinary medicine, and yet independent of the pecuniary resources which its practice might afford, has taken such a deep interest in it and in its advancement; and his large and well-bestowed gifts with a view to this end have not been limited to one nor to many years. An enthusiast in everything relating to our science, an accomplished contributor to its literature, and earnestly devoted to the maintenance of the rights and privileges of our University, as well as of its members, the profession could not have made at this, or any other crisis in its affairs, a better

selection. On the President for the year will devolve the serious task of repairing damages which, we trust, are not beyond repair; and we may, we feel assured, accord him our fullest confidence in everything pertaining to the office he has honoured us by accepting. The graduates of the Scotch schools may also see in this selection that their claims to recognition are not altogether left out of sight. During a period of thirty-one years, only one veterinary surgeon who studied in Scotland has held the office of President—the late Mr. John Lawson. The thirty-second year of the existence of our charter sees another. If the profession is wise, and is ready to profit by the misfortunes of the past, it will not allow a similar interval to elapse ere a fair share of justice is meted out to our northern *alumni*. In selecting for these offices, the question of schools should not be allowed to intervene, and no distinctions of this kind ought to be made the basis of unfairness, or what may appear to be such.

THE CHARTER OF THE ROYAL VETERINARY COLLEGE.

PERHAPS at no period in the history of our profession has there been displayed so much feeling and disappointment—to use the mildest term we can find—than exists with regard to the Charter of the London Veterinary School, which, we are informed, has now been granted. And when the facts connected with it are recalled to mind, it must be confessed that there has been ample cause for dissatisfaction and reproach, as well as for suspicion and distrust. The facts are simply these: It was discovered by the merest accident, from a notice in the *Daily News* of July 28th, 1874, that the Governors of the Royal Veterinary College were about to apply for a charter of incorporation for that institution. At the quarterly meeting of the Royal College of Veterinary Surgeons, held on October 7th, attention was drawn to the circumstance by a Member of Council who had seen the newspaper notice; but, owing to the absence of Professor Simonds, who is or was, we believe, the secretary of the charter committee of the School, no information of a positive

character could then be obtained. It was therefore resolved to write to the secretary for a copy of the proposed charter. At a special meeting of the Council, held on November 26th, at which again Professor Simonds was not present, a letter was read from him stating that he could not supply the information without authority, but that the application for a copy of the charter would be laid before the Governors at their next meeting. This very unsatisfactory state of affairs, and the further delay which it was attempted to enforce, unless the Council took an independent course in its endeavours to obtain information, led to an application being made to the parliamentary agents of the corporation to procure a copy of the charter. This application was successful, and the agents had the good fortune to obtain a copy—we say good fortune, because when, immediately afterwards, it was discovered that the Royal College of Veterinary Surgeons was desirous of procuring copies, it was impossible to obtain another impression. It now transpired that so secretly and carefully had the business been conducted, that not only was the charter drawn up and printed, but it was only awaiting Her Majesty's sign manual to become a legal instrument. On examining the document, it was obvious to the great majority of the Council that there appeared to be good cause for this concealment, inasmuch as the teaching school sought the power to confer degrees and licences on its students without any certain reference to the University of the profession.

For instance, in paragraph 5 of the prayer of the petitioners, reference is made to the management of the Royal Veterinary College, and the conferring of exhibitions, scholarships, etc., upon the students; and then paragraph 6 goes on as follows:—

"And further, that it would be of advantage to those who have been educated at the Royal Veterinary College, and who have obtained the diploma of the Royal College of Veterinary Surgeons, and have practised successfully and with distinction in their profession for such period, and subject to such conditions as shall be specified by the governors, shall be created and known as Fellows of the Royal Veterinary College, or by such other titles and distinctions as the said governors may judge expedient, and that the persons to be so selected and approved shall be entitled to use publicly such distinctions."

But in paragraph 13 of the Charter—the legal instrument—no mention whatever is made of the Royal College of Veterinary

Surgeons, and powers are conferred which exceed those sought for:—

"We declare that the governors shall be empowered to confer upon, and grant to such of the students of the said college as they shall think fit, annual or other exhibitions, scholarships, medals and other prizes, and certificates of distinction, and shall also be at liberty to appoint such Fellows, Licentiates, and Honorary and Foreign Associates of the said Royal Veterinary College as they may think proper, with such privileges and subject to such conditions as shall appertain to them respectively by virtue of any such bye-laws as aforesaid."

It will at once be seen, that in having the power to grant licences and bestow fellowships independent of the Royal College, a grave infraction of the rights and privileges of the latter could have been perpetrated at any moment; and the absurdity of a mere teaching school, with only one member of the profession on its governing board, granting the right to practise veterinary medicine and conferring degrees, did not mask the danger so palpably apparent.

The harmfulness of these two paragraphs in one respect, and their danger in another, led to prompt action on the part of the Council, even at that late hour. An assurance was given in a letter from the secretary, dated November 25th, that the Governors only had the object, in applying for a charter: "(1) To obtain a better security for the property of the school, and (2) the elevation of the students when at college, and when they afterwards distinguished themselves as members of the profession; and that they (the Governors) had never lost sight of the distinction existing between a collegiate teaching body and the University." But as this was merely a private and informal opinion, and bore no weight, and, indeed, in the face of the printed charter, was valueless, it was decided to obtain the opinion of counsel before any further steps were taken, and to beg the Government to suspend its action in granting the charter. The opinion of an eminent lawyer was sought; though the feeling of the Council was in favour of the excision of the objectionable portions of the two paragraphs above quoted, in consequence of their not only tending to bring ridicule upon the system of conferring degrees, but also because of their danger to the Body Corporate, should the school be influenced by unscrupulous and hostile persons at any time.

The opinion of counsel was to the effect, that the Royal College of Veterinary Surgeons should be acknowledged in paragraphs 13 and 17, by the insertion of certain words bearing reference to it, and binding the school not to grant licences or degrees to any students who were not members of the University. In a most unfortunate moment, and unauthorised by the Council, which was not aware of the circumstance until a fortnight afterwards, the President of the Royal College wrote to the secretary, stating that if the suggested words were added to the paragraphs in question, all would be well, concluding his letter in the following terms: "These are the only alterations which the Council deem necessary for an equitable adjustment between the rights and privileges sought by the Royal Veterinary College and the Royal College of Veterinary Surgeons."

This most unusual and imprudent act of the President tied down the Council at once, and without its assent, to what we must consider a very unwise course; and in compromising it, prevented it from adopting a resolution that had been prepared with the object of obtaining an interview with the Lords of the Privy Council. The secretary of the charter committee of the veterinary school, who had sent in a written protest against obtaining the opinion of counsel, and who had strenuously opposed any suggestions being made to the Governors, on the unjustifiable plea that it would be insulting to them, acknowledged the President's communication, which he promised should in due course be presented. Contrary to the assurance that the Governors would be offended at the Body Corporate asking that the protecting words might be inserted, it appears that they offered no objection whatever to their being introduced.

So late as April of the present year, a protest from the Principal and Professors of the Edinburgh Veterinary School against the London School having the power to confer licences and degrees, was laid before the Council of the Royal College; and the feeling has been universal throughout the profession, that no teaching-school should possess this privilege. And there can scarcely be the shadow of a doubt that had the matter been properly represented to the Governors of the Royal Veterinary College, against whom not the faintest suspicion of unfairness

or enmity towards our corporation can be entertained, and who have acted throughout in the most friendly and courteous manner, the obnoxious paragraphs would have been suppressed, and an injury to the school itself, no less than to the profession, would thus have been averted. But the Council could not honourably withdraw from the course to which it had most unfortunately been committed without its consent.

After some correspondence and negotiating, the Council was informed that the Government had assented to the insertion of the saving clause, and the fears of the profession were lulled. So late as the Annual Meeting (May 3), it was fully believed that the Royal College was safe; and even on that occasion the President repeatedly assured the meeting, in reply to the anxious inquiries then made, that the charter—which had, it appeared, received official sanction—contained the necessary words. The painful position of that gentleman, and the angry astonishment of those members of the profession who chanced to be present at the dinner a few hours later, may be conceived, when the secretary of the School (who was absent from the meeting in the morning, but wrote to the President with regard to his re-election on the Council) stated that the charter which had received the Royal assent did not contain these clauses, and that he had known this fact for a day or two!

The suspicions as to the motives which had inspired whoever was the prime mover in the matter, again became stronger than ever; and they were not diminished by the knowledge that, throughout the whole transaction—from its inception up to April of the present year—there had never appeared in the journal issued by the school the faintest intimation that a charter was being sought for, nor the slightest reference made as to the agitation which the charter had excited. But in that month the journal contained a leading article on the incorporation of the Royal Veterinary College, in which it dwelt on the powers it now possessed "*of appointing former students Licentiates, or those who have practised with particular distinction in their profession, Fellows;*" though without any allusion to the saving clause of the Royal College (which would go to prove that the omission was known more than a month before the annual meeting): the entire

article being an incoherent and unjustifiable pæan of defiance and victory over the profession. Nothing could have been in worse taste, and nothing could have tended more to confirm and exalt the suspicions prevailing as to the intentions of those who led the Governors into this awkward degree-and-licence dilemma. The Royal College of Veterinary Surgeons, though it had applied repeatedly for a copy of the charter, had not, until the last few days, been furnished with one from the Governors; and nothing of the document has been printed in the school journal, except a small extract on the cover. Everything has apparently been done to keep the profession in the dark; and therefore the assurance that the charter was to confer a benefit on it, could not but be received with the scepticism which other assurances from the same source had engendered.

Where and when the omission of the important words occurred, and how it happened, is yet as hidden as the other parts of the transaction; but the profession will not be satisfied until it has learned more than it has been permitted to know. But for the mere accident of the notice in the *Daily News*, there can be little doubt that the charter might have become a legal instrument without the Body Corporate knowing anything about it.

We have been compelled to allude to the Governors of the Royal Veterinary College, but it was simply as governors, and without any reference to the share they may have had in this matter. As we have already insisted, they must be entirely exculpated from any intention to degrade our profession, and other professions, by allowing degrees to be conferred in their name, and the granting of which would burlesque what is in a University a most dignified and salutary privilege. They possibly do not know that this very onerous and responsible duty is not assumed, neither would it be allowed to be assumed, by any medical or other teaching school, for the simple reason that it could not be carried out beneficially. Licences and fellowships in medicine are only granted by Universities after a severe educational test, and after satisfying the profession of which they are the head that these powers and honours are well deserved. In the present case, if veterinary schools are to confer licences and fellowships, it will reduce the matter to a painful farce, prove

no evidence of merit, but possibly of the want of judgment or partiality of the Principal of the school, who would of course be left to nominate his friends and exclude his enemies. No one would hail with more satisfaction than ourselves any well considered means for raising the profession by conferring honours; and we doubt not that the Governors have been induced to believe that the privilege they have sought and obtained in this direction will effect this. But they have only heard a very one-sided statement; and if they knew what the members of the profession who are to be benefited have to say, they in all probability would at once, and gladly, expunge the harmful paragraphs. If they are really anxious to benefit veterinary science in this country—and that they are we have every reason to believe—then we would beg of them to direct their attention to the preliminary education of the candidates for admission to the school, and to their scientific education when admitted; and they will discover that both are utterly insufficient, and bring the greatest discredit upon us, both at home and abroad. The charter touches neither of these points, and yet they are the only ones worth consideration, as they are those the profession is urgently insisting upon. If the schools will only attend to the education of the students, the Royal College of Veterinary Surgeons, we have no fear, will honour the members who distinguish themselves in after-life. It alone can have the knowledge as to who are worthy in the whole profession, and its selection will be respected and trusted by the profession, no less than by the public. This would certainly not be the case with the school selections.

Meeting of the Governors of the Royal Veterinary College.

On going to press, we learn that a meeting of the governors of the Royal Veterinary College—the first since the charter was obtained—has been held, and that, in referring to this matter, the greatest regret was expressed that, through some irregularity among the officials of the Government, certain words, for the insertion of which into the Charter the Royal College of Veterinary Surgeons had applied, and to which the governors had assented, had been omitted from Clause 13.

The following resolution was, we believe, moved and carried unanimously:—"That the Governors of this Institution will seek the advice of the law officers of the Crown, and are quite prepared to abide by their decision or advice." We are also given to understand that a motion having reference to the selection of Fellows, Licentiates, and Honorary and Foreign Associates, was postponed.

It may be inferred from this, that now, when the Governors have been better informed as to the effect of the charter, they are perfectly willing to afford redress. If they only knew a little more, we entertain the idea that they would seek to release themselves from an unsatisfactory position by asking the law officers of the Crown to diminish the length of the charter by the excision of paragraph 13.

ROYAL COLLEGE OF VETERINARY SURGEONS.

The following communications have been received by Messrs. Loch and Maclaurin, Parliamentary Agents, from the Hon. Adolphus F. O. Liddell, Home Office, Whitehall, and the Deputy Clerk of the Patents, respecting the Royal Veterinary College Charter.

"WHITEHALL, *June 11th*, 1875.

"GENTLEMEN,—I am directed by Mr. Secretary Cross to transmit to you the copy of a letter from the Deputy Clerk of the Patents, explaining that certain words had been accidentally omitted in engrossing the 13th clause of the Royal Veterinary College Charter, that these words have been duly inserted therein, and that the Charter has been re-sealed.

"I am, etc.,
(Signed) "A. F. O. LIDDELL.

"Messrs. Loch and Maclaurin."

"GREAT SEAL PATENT OFFICE, CHANCERY LANE, W.C.,
"*June 10th*, 1875.

"*Re the Royal Veterinary College Charter.*

"SIR,—The words accidentally omitted from Clause 13 in the engrossment of this Charter have been inserted, and the Charter has been re-sealed. The error appears to have occurred by reason of the words in question having been interlined in the Law Officer's Draft, then struck through with the pen, and subsequently restored by a

marginal note, which note apparently escaped the attention of the Engrossing Clerk and the Examiners.

"Permit me to express my regret at the occurrence and the trouble it has occasioned. "I am, etc.,

(Signed) "HEN. ROB. WHITE.

"By order of the President,

"WM. H. COATES, *Secretary.*

"The Under-Secretary, Home Office."

THE FITZWYGRAM PRIZES.

COLONEL SIR FREDERICK FITZWYGRAM, Bart., having placed one hundred guineas at the disposal of the Royal College of Veterinary Surgeons, for one or not more than three prizes, to be competed for by graduates of all the veterinary schools who have recently obtained their diploma, the handsome gift was gratefully accepted, and arrangements made to carry out the wishes of the donor. The Principals of the four veterinary schools were duly informed of the circumstance, in order that the senior students might be prepared to enter the lists. The Principal of the Glasgow school reported that he had no names to forward for competition; seven candidates were entered from the Edinburgh college, and seven from the New Veterinary College in that city; but the students of the London college had not, for some reason or other, been informed of the competition, and as their diploma examination usually takes place before that in Scotland, they had dispersed to their homes. However, they were made aware in sufficient time of the prizes, by circulars issued from the Royal College of Veterinary Surgeons, and six candidates inscribed themselves. The arrangements were complete in every respect, the greatest care having been taken that nothing should intervene to mar the intention of the munificent donor, and the competition took place in London and Edinburgh on the same days (April 19th and 20th), and at the same hours. Only three of the intending competitors—graduates of the London school—appeared, one of whom did not compete, in consequence of attending too late. Three of the new veterinary school retired from the test; and in consequence of there being an examination for the army

at the cavalry barracks near Edinburgh, the seven gentlemen at the old veterinary college were not present. This left the struggle between six graduates—three of Scotland, and three of England.

The examination was divided into written and oral, and practical divisions. The number of marks apportioned to the first was 1,200, and 600 to the latter. The written examination came first, and it was ruled that any candidate failing to obtain half the number of marks assigned was not eligible to compete in the other examination. Only one gentleman succeeded in conforming to this rule—Mr. J. H. Steel, son of Mr. Steel, veterinary surgeon, 12th Lancers—who received 881 marks.

In the second examination he obtained 515 marks, and the report says that this reached a much higher standard of proficiency than the other examination.

The result was that Mr. Steel was awarded the first prize—fifty guineas and travelling expenses.

On the whole, the Royal College of Veterinary Surgeons may fairly be congratulated on having been able to carry out this generous idea for the advancement of our science to a satisfactory conclusion, so far as this year is concerned. It is probable that if the London students had been duly apprised, more would have sent in their names as competitors; but every precaution will be taken that graduates will have notice in good time next year. Colonel Fitzwygram may also be heartily congratulated on the success which has attended the first attempt to carry his praiseworthy scheme into operation. The difficulties which were experienced on this occasion will not, let us hope, be met with another time, and the thanks of the profession are due to him for the onerous share he took in the arrangements, and the zealous manner in which he acquitted himself of the self-imposed task. The successful competitor passed an excellent examination, one in every way creditable to him; and we trust that the honour he has achieved will not only prove a strong incentive to him to continue his studies and adorn his profession, but that it will stimulate future competitors even to excel him, and to come forward in large numbers to dispute which of the schools can produce the best men. For the benefit of those who may enrol themselves as

future competitors, and also for the information of the profession, we append the questions given in the written examination. It will be seen that they should not have offered an insurmountable barrier to the average student who cared to exert himself.

QUESTIONS IN ANATOMY.

Examiner: MR. FLEMING.

1. Define a *typical vertebra*, and point out the homologies of the *atlas*, *axis*, and *dentata*, in accordance with this definition.

2. Enumerate the characters common to all the horse's *ribs*, from a typical point of view.

3. Describe the different kinds of *articulations*, and give an example of each form.

4. Name and describe the different bones which enter into the formation of the *pelvis*, and the *articulations* which unite them, as well as the *ligaments* of the pelvis; and specify the differences between the pelvis of the *horse* and that of the *mare*.

5. Describe the structure and development of a *molar tooth*.

6. Describe the *ovaries* of the mare: their situation, form, relations, means of attachment, structure, and functions.

7. What is the structure of *adipose tissue?* how is it distributed in the body? and what are its uses?

8. Describe the structure of the *retina*, and state its function.

9. What are the *lymphatic vessels?* how do they originate? what is their general course and termination? and mention in what tissues or organs they have not yet been discovered.

QUESTIONS IN PHYSIOLOGY.

Examiner: DR. BURDON SANDERSON, F.R.S.

1. Describe the general form of the *heart of the horse* (1) in the relaxed state, and (2) in the contracted state. What is the usual frequency of its *contractions?* How long does each contraction of the ventricles last? and what is the time that intervenes between one contraction and the following? Enumerate the *valves of the heart*, and state at what period before, during, or after each contraction each valve closes or opens, as the case may be.

2. What is "gastric juice"? Describe the gastric juice of the dog, referring to its physical properties and most important chemical constituents. Describe the *glands* by which it is secreted, and state the extent of their distribution in the mucous membrane of the alimentary canal in solipeds, ruminants, and birds.

3. State what you know regarding the nature, properties, and chemical constitution of the *colouring matter* of the blood. About what *weight* per cent. of colouring matter does blood contain? What is the nature of the *change of colour* which occurs when arterial blood becomes venous? and in what part of the circulatory system does this change take place?

4. Compare the urine of the horse with that of the dog, as regards its general characters, *e.g.*, colour, smell, reaction, and specific gravity. State the nature of the deposits (if any) which occur in the urine of these animals, and enumerate the principal crystalline organic compounds which they contain.

5. Give an account of the capillary bloodvessels of a single *acinus* or

lobule of the liver, and describe the course of the circulation through such a lobule. State what you know as to the changes which take place in the blood as it passes through the liver.

6. What effects have been observed as regards the functions of circulation and respiration, after section of both pneumogastric nerves in the neck? State what happens when, after division of one of these nerves, the part beyond the division is excited electrically. Explain these experimental results in their relation to the function of the pneumogastric nerves.

QUESTIONS IN PATHOLOGY AND MORBID ANATOMY.

Examiner: MR. HUNTING, M.R.C.V.S.

1. Describe the local changes taking place during the formation and progress of an abscess.

2. What are the causes of simple fever in animals? and what functional changes accompany this condition?

3. Describe the morbid changes occurring in the chest during pleurisy, and state what symptoms accompany each stage of the disease in the horse.

4. Describe the methods of distribution in this country of foot-and-mouth disease, glanders, and rabies. State the length of the period of incubation, and the possible duration of each of these diseases in the animals most commonly affected.

5. Describe the natural history of the "scab" insect of sheep, and of "bots" in horses.

6. Wounds are said to heal by "first intention" and by "granulation." What is meant by these terms, and what conditions favour or retard either process?

QUESTIONS IN CHEMISTRY AND TOXICOLOGY.

Examiner: PROFESSOR VOELCKER.

1. Express in symbols the composition of the more important compounds of lead used in veterinary practice; and briefly describe their properties and uses.

2. What is the composition of tartar emetic? and how do you detect its presence in the contents of a stomach?

3. A white powder is suspected to be arsenious acid: describe how you would ascertain whether such is or is not the case.

4. Express in symbols the composition of the following substances:—Epsom salts, glauber salt, white arsenic, white vitriol, blue vitriol, green vitriol, black antimony, calomel, corrosive sublimate, butter of antimony.

5. Mercury forms two classes of salts—mercurous and mercuric. How would you discover whether a given salt was a mercurous or a mercuric salt?

6. Explain the action of the following substances as disinfectants:—lime, charcoal, chloride of lime, sulphurous acid, carbolic acid, chloride of zinc, and permanganate of potash.

7. What is the general composition of the urine of herbivorous animals? State the composition of urea, and explain how it is readily converted into ammoniacal salts.

8. What is the composition of bones?

9 What are the elements of the group of albuminoids? Mention the distinguishing properties of albumen, casein, and fibrine.

10. How can you readily detect whether a rape-cake is fit for feeding purposes, or injurious to stock?

QUESTIONS IN BOTANY, MATERIA MEDICA, AND THERAPEUTICS.

Examiners: PROFESSOR BENTLEY, F.R.S., AND MR. FLEMING.

1. Describe generally the structure of the "seed" and the process of "germination."
2. What are the distinctive characters of "roots" and "stems"? Define the following:—"rhizome," "corm," "bulb," "tuber," "epiphyte," and "parasite."
3. What is understood by "determinate" and "indeterminate inflorescence"?
4. Define the following:—"bract," "carpel," "hypogynous," "perigynous," "epigynous," "syngenesious," "synandrous," "thalamifloral," "corollifloral," and "monochlamydeous."
5. To what natural order of plants does belladonna belong? What is its popular name, and the name of its active principle? Specify its most peculiar physiological action, and mention some other substances which also possess this action.
6. Name the active principles of tobacco, opium, nux vomica, aconite, cinchona, and henbane, and state their physiological properties.
7. Enumerate the chief circumstances which modify the action of medicines when administered to animals.
8. What are the therapeutic indications for the administration of aconite? and in what circumstances is its use contra-indicated?
9. How would you prepare an "extract"? What are the accidents which may occur? and how may they be avoided?
10. How many minims are there in a gallon of fluid?

ELECTION OF DR. BURDON SANDERSON, F.R.S., AS EXAMINER IN PHYSIOLOGY.

THE Board of Examiners of the Royal College of Veterinary Surgeons has sustained a serious loss in the retirement of Doctor Sharpey, F.R.S., owing, we regret to say, to impairment of vision, which had necessitated an operation that was not followed by the results at one time expected. The high position of Dr. Sharpey in the scientific world—but, above all, his justly-earned reputation as a physiologist and a teacher—rendered his co-operation in everything connected with the advancement of medicine a benefit of no ordinary kind. Perhaps no better examiner of students could be found anywhere; and at the Examining Board of the Royal College for so many years, his presence was not only a guarantee that no incompetent student would be allowed to pass, but it was also a source of confidence to the students themselves, from the conviction that they would receive every justice at his hands. Such a loss is, therefore, not easily repaired; but we feel certain that it could not be better compensated for than by the appointment of Doctor Burdon Sanderson, F.R.S., as his successor. Dr. Sanderson was, if we mistake not, a pupil of Professor Sharpey, and perhaps one of the most distinguished of the many pupils who have studied under him, and through his teaching and example have won for themselves great

distinction. Amongst the physiologists of Europe, Dr. Sanderson is well to the front; while as a pathologist his researches have been of the utmost importance, and have greatly added to our knowledge of morbid processes. He has the additional advantage, so far as his connection with the Examining Board of the Royal College of Veterinary Surgeons is concerned, in being a comparative physiologist and pathologist; while his position as the head of the Brown Institution—which is devoted to scientific investigations into the diseases of animals—gives him a greater interest in everything relating to veterinary medicine, between which and human medicine we have reason to know he is anxious that a closer union should exist than that which now prevails. We therefore think that the veterinary profession have reason to be congratulated upon having elected Dr. Sanderson to fill a post so long and so worthily held by his respected teacher, Dr. Sharpey.

ARMY VETERINARY SURGEONS DURING WAR.

THE position of Army Veterinary Surgeons during war has been attracting a considerable amount of attention since the Franco-German conflict. During the struggle between the two armies of France and Germany, the veterinary surgeons engaged, though always considered and treated at other times as non-combatants, had to submit to all the vicissitudes and risks to which the combatant officers were exposed, and to incur capture, and death even, in the performance of their manifestly humane duties. It was, therefore, a source of satisfaction to learn that Baron Lambermont, the Belgian Plenipotentiary at the International War Congress lately held in Brussels, on the solicitation of Professor Thiernesse, of the Veterinary School of Belgium, undertook to bring the subject before the Congress. We now learn that the Congress could not move in the matter, but suggested that it should be referred to the Geneva Convention. Of course this cannot have taken any one by surprise, as no definite result could be arrived at on anything the Congress was assembled to consider; but to our Army colleagues, particularly on the Continent, it will prove a disappointment.

The Geneva Convention, as is well known, recognised medical officers as non-combatants, and therefore not exposed to capture or other danger beyond being sometimes under fire; consequently, not liable to be subjected to those severe measures which befall combatant officers either on the field of battle or as prisoners of war. The red cross they wore, or under which they performed their duties, protected them. The Convention, when framing its laws, forgot, we may suppose, that there were other men who figure in the composition of armies, whose humane and non-aggressive functions deserve equal consideration. If, as we have before said, military veterinary surgeons are denied the honours and privileges of combatants, it is scarcely fair that they should suffer equal peril at the hands of the enemy. We hope, notwithstanding the failure of Professor Thiernesse in this instance, that the question will be taken up whenever an opportunity presents itself.

Reviews.

ANIMAL MECHANISM: A Treatise on Terrestrial and Aerial Locomotion. By E. I. Marey, Professor at the College of France, and Member of the Academy of Medicine. With 117 Engravings. London: Henry S. King and Co.

Animal mechanics is a subject which, with several others, has not yet been entered in the list of studies that should make up the professional education of the veterinary surgeon in this country. And yet to those who can appreciate the value of such a study, it must be an astonishing fact that no attempt has been made to introduce even its rudiments into the course of instruction afforded at the veterinary schools.

A series of lectures on "Exterieur," as it is designated, has for years been given at the French National Veterinary Schools; and this has included, to some extent, animal mechanism, particularly with regard to the horse, whose mechanical powers are of such immense importance to mankind. Perhaps in no profession is there a greater necessity for sound notions of this matter than in our own, as it is of every-day utility; it is in fact essential, if we are desirous of enlightening ourselves as to many obscure problems in physiology and pathology, and to benefit others in the selection of horses for different uses, diagnosing lameness due to disease or accident in various regions of the animal body, and in many other ways. To those who extend their observations beyond the horse and ox, and investigate the mechanism in action of such creatures as, for instance, a bird or an insect, the subject will be found to possess the greatest fascination.

We are not aware that any one in England, at least in the veterinary profession, has given much attention to the study of the domesticated animals as living machines, particularly with reference to that essentially mechanical function, locomotion. St. Bel, the first veterinary teacher in this country, deeply imbued with the importance of a just comprehension of the mechanism of progression in the horse, and bringing to bear the knowledge which he had acquired in France, gave us a measurement of the proportions of the famous race-horse, Eclipse; but he was the first and last who attempted anything in this direction. In France it has not been so; for amongst veterinarians this study appears to have had a peculiar interest, and we have excellent treatises by various writers—extending from Solleysel up to Bouley, Colin, Lecoq, and last, but not least, Merche; whilst amongst amateurs we have the classical writings of Raabe, Mazare, Vincent, and Goiffon.

Though we pride ourselves, and justly, on breeding the best horses in the world, yet, as the recent controversy regarding a now celebrated picture testified, we are not altogether agreed as to the manner in which a horse walks, for instance.

Up to a recent period, the eye alone had to be trusted to in discovering the manner in which a horse moved his limbs while executing different paces; and sometimes his footprints were of assistance in this inquiry. But the quadrupedal movements of this creature were—in at least one

of these paces, walking—so difficult to follow with the eye, that the greatest diversity of opinion prevailed as to the exact position of the limbs at a given moment of progression. Several years ago, so anxious were we to satisfy ourselves with regard to the play of the legs of a horse while walking, that we had a pit dug beside a level path, along which a horse could be travelled; and into this we ensconced ourselves, buried to the eyes, in order to observe the initial movements and succession of the limbs.

Marey, whose application of mechanical inventions for registering physiological movements has so aided the advance of biological and medical science, has now taken up the subject of animal mechanism. His researches by the graphic method of investigation have resulted in the production of one of the most delightfully interesting, and withal valuable, books we have ever perused on the subject. Commencing with a study of "Forces and Organs," the "Transformation of Physical Forces," "Animal Heat and Motion," "Animal Mechanism," "Variability of the Skeleton," etc., we are introduced to the functions of "Terrestrial" and "Aerial Locomotion." Contrivances of the greatest ingenuity and utmost delicacy have been devised to register, mechanically, the movements of the locomotive organs of different beings—commencing with man himself, then passing to the horse, birds, and finally insects. The marvellous tracings made by the wing of a bee, wasp, and humming-bird moth exceeding anything of the kind we have ever witnessed, and will prove a treat to those who care to know the extent to which mechanical inventions can excel the eye or hand of man in some particulars.

But the chapter on "Quadrupedal Locomotion studied in the Horse" will prove of most interest to the veterinarian, as it disposes for ever of many questions which were until now in dispute, while it corroborates in several particulars the visual observations of such excellent veterinary physiologists as Colin, of the Alfort school.

In alluding to what has been written on the subject, Marey says: "While reading these works, on which so much sagacity of observation and such rigorous reasoning have been expended, one is astonished to find that the greater number of these writers are not agreed in their definitions of the paces. This disagreement in similar observers can only be accounted for on the principle of the insufficiency of the means at their disposal to enable them to analyze the very complex and rapid movements of the horse. The difficulty of expressing in words the rhythms and the durations of these various movements adds still more to the confusion. When a horse is running, and passing from one kind of motion to another; when he moves his limbs with a rapidity which makes ones giddy, and according to the most varied rhythms, how can we appreciate or describe faithfully all these actions? It would be as easy a task, after looking at the fingers of a pianist when running over the keys, to try and describe the movements which have just been executed." Noting that the different kinds of gallop have an irregular rhythm recurring at periodical times, and therefore most difficult to analyze, he justly remarks: "But if we observe a horse either at a

walking pace, *ambling*, or *trotting*, and if we concentrate our attention on the anterior limbs alone, or on the posterior ones, we perceive that the rhythm of the impacts and elevations of the right and left foot entirely resemble those of the feet of a man walking or running more or less quickly. The alternation of the strokes of the feet is perfectly regular, if the horse be not lame of one of the limbs under observation."

Dugès had previously compared the quadruped, when walking, to two men placed one before the other, and following each other. According as these two persons (who ought both to take the same number of steps) move their limbs simultaneously or alternately; according as the man in front executes his movements more quickly or more slowly than the one behind, we see all the rhythms of the movements which characterise the different paces of the horse reproduced. Every one has seen in the circus or the masquerade, those figures of animals whose legs are formed of those of two men with their bodies concealed in that of the horse. This grotesque imitation bears a striking resemblance to the animal, when the movements of the two men are well co-ordinated, so as to reproduce the rhythms of the paces of a real quadruped; and we recommend it to the notice of veterinary students who wish to study and analyze for themselves the movements of the horse.

The registering instruments before alluded to as employed by Marey, resolve, as we have before stated, the double problem of analysing with fidelity the acts which the senses could not accurately appreciate, and clearly express or write the result of this analysis in a series of tracings or notations. The apparatus is as simple as it is ingenious. A ball of india-rubber, filled with horsehair, is attached to the horse's hoof by a contrivance which adapts it to the shoe. By turning an adjusted screw, it is fixed to the horseshoe by three catches, which securely maintain the instrument. A strong band of india-rubber passes over the apparatus, as is seen in the figure, and keeps the horsehair ball in its place, but allowing it to project slightly beyond the sole. When the foot strikes the ground, the india-rubber ball is compressed, and drives upwards a portion of the air confined in an india-rubber tube passing from the foot to the registering instruments. When the foot is raised, the ball recovers its form, and draws again into its interior the air which the pressure had expelled. These instruments will soon

FIG. 1.
Experimental apparatus to show the pressure of the horse's hoof on the ground.

wear out on the road, but they last some time on the artificial soil of the riding-school. For experiments on ordinary roads, Marey had recourse to the instrument arranged as annexed. To the horse's leg, just above the fetlock joint, is attached a kind of leather "boot" fastened by straps. In front of this, which furnishes a solid point of resistance, are placed various pieces of apparatus. There is, first, a flat box of india-rubber firmly fixed in front of the bracelet; this box communicates, by a transmission tube, with the registering apparatus. Every pressure exerted on the box moves the corresponding registering lever. It is evident that all the movements of the horse's foot will be shown by these pressures on the india-rubber box, and be immediately signalled by the registering levers. For this purpose, a plate of copper, inclined at an angle of about 45°, is connected at its upper extremity with a kind of hinge, whilst its lower end is fastened by a solid wire to the upper face of the india-rubber box, on which it presses by means of a flat disc. On a wire parallel to the slip of copper slides a ball of lead, the position of which can be varied in order to increase or diminish the pressure which this jointed apparatus exerts on the india-rubber box.

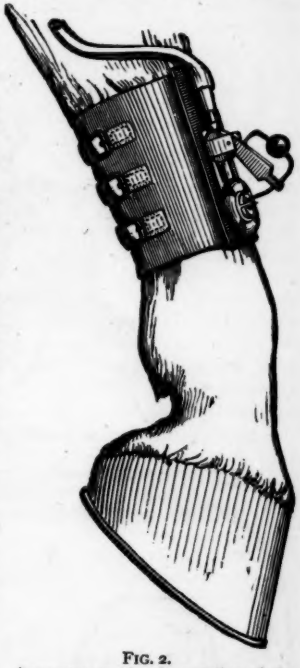

FIG. 2.
Apparatus to give the notation of the rise and fall of the horse's feet.

The function of this apparatus is intended to show the actions produced in various kinds of movements, the inclination of the oscilliating portions allowing them to act on the membrane during the elevation, the descent, and the horizontal motion of the foot. When the hoof meets the ground, the ball has a tendency to continue its motion, and compresses with force the india-rubber box. When the foot rises, the inertia of the ball produces in its turn a compression, by a kind of mechanism which registers the vertical reactions during the various paces.

When the horse has his feet furnished with the india-rubber boxes, thick transmitting tubes not easily crushed are fitted to them. These tubes are usually fastened by flannel bandages to the legs of the animal, and thence directed to a point of attachment at the withers,—they are then continued to the registering apparatus. The registrar now carries a great number of levers—he must have four at least—one

for each leg, and usually two other levers which receive their reaction movements from the withers and the croup.

FIG. 3.

A trotting horse furnished with the different experimental instruments, the horseman carrying the register of the pace in his left hand. On withers and croup are instruments to show the reactions.

The rider carries by the handle a portable registering instrument, to which all the levers give their signals at once; the hand which holds the reins is also ready to compress an india-rubber ball at the moment when the horseman wishes the tracings to commence. The above figure shows the general arrangement of the apparatus at the moment when the rider is about to collect the graphic signals of any particular pace.

Such are the means resorted to by Marey to obtain exactitude in delineating the horse's movements. At the same time he does not forget to insist on the great importance of possessing a knowledge of the *pistes* or foot-prints of the horse, as they enable an experienced eye to recognise the pace of the animal which has made them. To the artist they are of extreme value, as they alone can represent to him the limbs as they strike the ground, with the true distances which they ought to preserve from each other, according to the size of the horse, and the speed at which it is going. It is impossible to allude in this notice to the valuable results at which Marey has arrived with regard to the different movements of the horse; we must refer our readers to the book itself, which forms one of that most valuable collection now being

published simultaneously in this country and on the Continent, designated the "International Scientific Series." We will merely subjoin the tracings and notation of the walking pace—the most difficult of all to anaylse without resorting to mechanism. Marey's observations on the walk are not complete, and apply more especially to a fresh troop-horse in a riding school. Now it must be familiar to every one that horses do not all walk in the same way; neither does a horse always walk in the same fashion. An animal carrying or driving a heavy load does not walk as when free; fatigued, as when brought out of the stable; moving smartly, as when at a slow rate of progression; up or down hill, as when on the level. Neither does the heavy sluggish dray-horse walk exactly like the active hack, nor the latter as the racer. This Marey does not notice, but the results of his notation prove that some observers who had only their eyes and ears to aid them were not far from being correct. Let us then glance at these results and observations. We will select level ground, and place the horse, which is not ridden, in a "square" attitude (the fore and hind-legs transversely parallel), and knowing that the fore-limbs are the weight sustainers, and the hind ones the weight propellers (speaking of course in a general way), we will cause him to be moved. We observe that when he is about to commence to walk the body is slightly pushed forward by a hind-leg—it may be either right or left; and at the same instant the opposite fore one is raised. The movement certainly begins with a hind-limb projecting the body forward, *but the fore-leg is the first to be moved from the ground.* Supposing the off-hind to propel, the horse will invariable raise the *near fore-foot* from the ground. A fore-limb, then, always makes the initial movement. If, however, the horse is standing with one fore-leg farther under its body than the other, then it will extend the first, the opposite hind-leg following. In "backing" a horse, a hind-foot is first raised from the ground, the movement being the reverse of going forward.

The commencement of the walk is easily observed, and there can be no doubt whatever as to this being the rule. When the fore-leg has reached about one-half the elevation which it must attain, the hind-foot on the opposite side is just being raised, while the other hind and fore-foot are resting on the ground; so that at a moderate or quiet walk the horse is first supported on the diagonal limbs—though the other two are not raised to the same elevation at the same time, one being fully elevated, while the other is only half so. The next movement is placing the elevated fore-foot on the ground, and raising the other fore-limb—for only one fore and hind-leg can be off the ground at the same moment—at the same time the hind-foot is descending to be placed on the ground. At this period the weight of the body is borne by two lateral limbs. Therefore, in every complete step the horse makes, the body is first supported by the diagonal biped, and then by the lateral biped on each side; the base of support being, in fact, alternately diagonal and lateral. Only in the first or "initial" movement, and also when the animal is about to halt, is the weight supported on three legs

in a horse moving freely. After the first step, the diagonal and lateral limbs are alternately on and off the ground. Thus in a step the weight is carried by the limbs in four different ways, which may be exemplified as follows :—1. By the near-fore and off-hind (or left diagonal biped); 2. By the near-fore and hind (or left lateral biped); 3. By the off-fore and near-hind (or right diagonal biped); 4. By the off-fore and hind (or right diagonal biped). The fore-limb is always raised *before* the diagonal hind one, but *after* that on the same side; and there are four distinct raisings and plantings of the feet.

The step may consequently be divided into four periods, during two of which each foot is elevated, and for the other two on the ground, one of the periods representing the interval between the beat of each. The first foot raised is not placed on the ground until the moment the third foot quits it, and so on successively; the beat of the near-fore, for instance, preceding that of the off-hind, but succeeding that of the near-hind. The fore and hind-foot of the same side are close to each other when off the ground (lateral biped), the first having just left it, and the second being about to be placed in or close to the print of the fore one. This is a position of the limbs rarely delineated by artists.

In the regular walk of a well-formed horse on soft level ground, it will be observed that the print of the fore-foot is covered by that of the hind-foot of the same side.

Of the four periods in the step, two are those of impulsion by the hind-limbs—each coinciding with the placing of a hind-foot on the ground—while the base of diagonal support is equal to one-half the lateral base, and represents only half a step, the latter representing an entire step. The length of a step is therefore the distance between the two succeeding imprints made by a fore or a hind-foot.

With regard to the "cadence" or "beats" in the walk, these, of course, correspond to the four periods in each step, and are pretty nearly equal, the intervals separating them being alike in duration at a steady walk by a sound horse. In some cases, however, though these are rare, the interval will be shorter in the diagonal than the lateral biped, and *vice versâ*. It is the same with the footprints. With horses walking out freely, and especially those whose body is short when compared with the length of their limbs, the print of the hind-foot will be in front of that of the fore-foot. With long-backed horses the contrary will usually be observed. With a well-proportioned horse ascending an inclined plane, the step will also be shorter, and the hind-foot not placed so far forward, owing to the centre of gravity being thrown back; but in descending, the print of the hind-foot will be in advance of the fore one. In drawing or carrying a heavy load, or when much fatigued, the step is shortened, as in ascending an inclined plane, and the feet remain longer on the ground; so that, in reality, in these instances the weight is always borne on three limbs, none of the feet being raised until that immediately preceding it has been firmly planted.

We have entered thus fully into one of the movements, and have

even supplied omissions in Marey's description, because we are assured that perhaps not one veterinary student in a thousand could explain the manner in which the most common of all the horse's paces is performed.

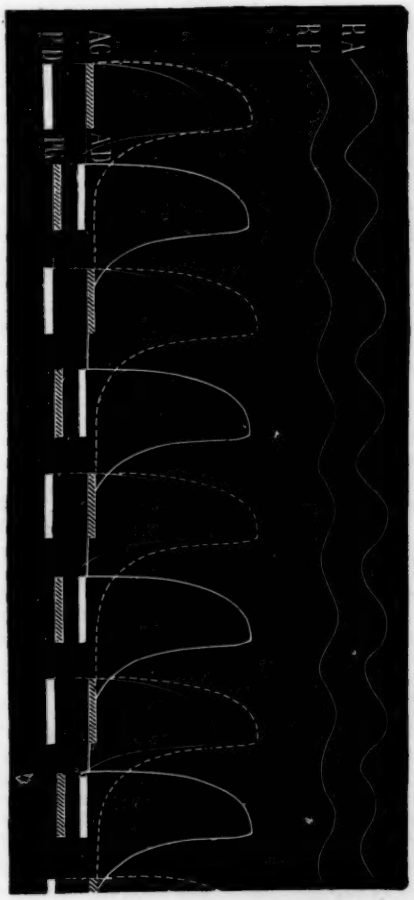

FIG. 4.
The tracings and notations of the walking pace, with equal pressures of the feet, both diagonally and laterally.

In the work before us, the explanations given of the tracing curves and notation, which appear at first sight rather perplexing, are readily comprehended ; and as they are given for all the paces, one can see at a glance the manner in which the limbs are moved.

We know of no work which more lucidly and correctly describes what should be regarded as an important section of the scientific veterinary surgeon's studies, and we cannot for a moment doubt that those who invest in the very cheap little volume will be as much pleased as instructed. It is all but an exhaustive treatise on locomotion of every kind, and will prove of the greatest service to many, but particularly to veterinarians and artists.

THE SPECIFIC ACTION OF DRUGS ON THE HEALTHY SYSTEM: An Index to their Therapeutic Value, as Deduced from Experiments on Man and Animals. By A. G. Burness, M.B., C.M., and F. J. Mavor, M.R.C.V.S. London: Baillière, Tindall, and Cox.

No department of medicine is perhaps more neglected, and consequently least progressive, than that whose special province it is to investigate the physiological properties of drugs and medicinal agents, and the application of these in the cure of disease. Of late years more attention has certainly been devoted to the subject; but when we compare what has been effected in this direction, with the advances made by histology, physiology, and pathology, it is at once obvious that much has to be done in order to place therapeutics on anything like an equal footing with some of the other branches of the healing art. The authors of the above work appear to have been cognisant of this fact, and have set about remedying, as far as their opportunities would permit, what they must have considered a defect in medicine, by associating themselves in the study of certain medicaments, and observing and experimenting on organisms with which they were, professionally, best acquainted. The result is very satisfactory; for we find that, after all, human and animal medicine differ but little in their more salient features, and that the scientific student of the one section can materially assist the intelligent enquirer in the other: this mutual assistance proving essentially beneficial in the elucidation and final determination of the physiological and curative properties of a number of substances which have appeared in our materia medica for a more or less lengthened period of time, but whose value was not previously accurately ascertained. We have not sufficient space to indicate by quotations what we consider the chief merits of the work, nor in what respect it will prove of most service to the human and veterinary practitioner; but we may venture to give it our warmest commendation as an original and highly meritorious production, and one reflecting much credit on the authors. Their present contribution leads us to indulge the hope that they will prosecute their combined researches still further in this particular line, and give us the benefit of them at an early period. It is by experimentation and close observation alone that progress can be effected, and there is room for any number of workers.

Annals of Veterinary Science.

ANATOMY AND PHYSIOLOGY.

PERSPIRATORY GLANDS IN THE FROG OF THE HORSE'S FOOT.

BY PROF. L. FRANCK OF MUNICH.

(*Deutsche Zeitschrift für Thiermedicin und Vergleichende Pathologie. Ersten Bandes, Erstes Heft.*)

IN the *Deutsche Zeitschrift für Thiermedicin* for January, 1875 (p. 68), Professor Franck, of the Munich Veterinary School, has an interesting paper on this subject. It is generally accepted by veterinary anatomists, that in the matrix of the horse's hoof (*Hufflederhaut*) neither sebaceous nor sudoriparous glands are to be found; and to prove this circumstance to be correct, all the most important or essential, but different, parts in the structure of the general envelope of the foot have been examined. And it is certain that, for the greater portion of the matrix, this is correct; but for a portion of the frog it is not so. In the horse's foot, Franck has discovered a part where there is an expansion of undoubted perspiratory glands, which are here and there of considerable size, and resemble in dimensions those of the external genitals (prepuce and vulva).

A convolution of one of these glands has a globular appearance, and is about the size of a pin's head. In the full-grown horse, they can be perceived by the unaided eye; they are seated above and to the side of the so-called cock's comb (*Hahnenkammes*—the longitudinal ridge or high crest on the upper surface of the horny frog, the under side of which constitutes the "cleft" of the frog); but they are not to be found anywhere in the posterior part of the frog (bulbs), nor in its anterior portion. Similar sudoriparous glands are met with, not only in the matrix of the frog, but in other parts of the horse's body; in the frog-cushion (or fatty frog), they, however, really exist as alveoli, and are found among the fibrous and elastic textures of this part. In most of the sections are observed one and two layers, and even a moderate number will be found to possess three and four layers (as in fig. 5 A, *d*). The excretory ducts of these glands apparently pass into the frog-cushion and the matrix membrane in a straight line, or they continue their course in a slightly flexuous manner. In the papillary layer (*c*) they enter the frog-horn, following the direction of the papillæ themselves (*e*), and then remain near them. Here they become largest and most tortuous, and traverse the horny layer of the epidermis (as Franck designates the horny frog) in a regular corkscrew fashion (A, *e*), accompanying the horn tubes, and in some rare instances penetrating these either wholly or in part. They open on the surface of the frog in an oblique manner, the aperture being inclined forward, and is a little wider than the other part of the duct. One section of them opens into the centre of the cleft of the frog (*Strahlspalte*), but a larger number appear at the sides of the commissure, and even on the lower surface of the frog itself.

The posterior part or heels (bulbs), as well as the body and point of the frog, show no excretory ducts.

During their course through the upper half of the horny frog, the ducts are surrounded by concentric layers of horn cells; and in a longitudinal section the cells of the inner layer are observed to be arranged like the tiles on the roof of a house. In the corium, or matrix, these covering cells are

somewhat swollen (B, *a*). Traces of the cell-nucleus are indistinctly perceptible. A very thin transverse section exhibits the canal of the duct quite perfectly; sometimes, however, this is choked up with cells or their *débris*.

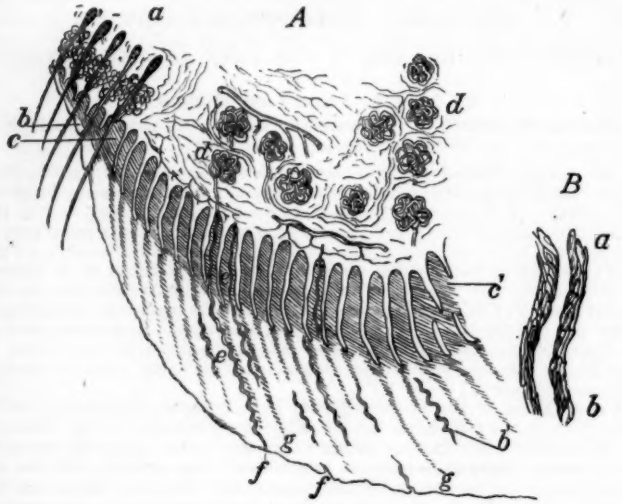

FIG. 5.
SECTION OF THE HORSE'S FROG.

A.—*a*, Hairs at the heels, with sebaceous glands. *b*, Horn-surface of the epidermis. *b'* surface of the epidermis covered with the frog-horn. *c*, Corium of the epidermis with its papillæ. *c'*, Frog-horn covered by the corium. *d*, Sudoriparous glomerules, with *e e* their ducts, and *f f* their orifices. *g g*, Horn-fibres. Magnified about twenty diameters.

B.—Portions of duct removed from the frog. *a* and *b*, Matrix of the horn surrounding the duct.

Alongside the horn-fibres (A, *g*), as they pass to the inferior surface, can be seen their corkscrew-like course, the regular arrangement of the cells immediately covering them, and their continuous undeviating calibre.

Chauveau, in his "Comparative Anatomy of the Domesticated Animals," when speaking of the hoof, says: "These canals are rectilinear, with the exception of those in the frog, which are seen to be more or less flexuous." Franck says that it is very probable that Chauveau saw the perspiratory ducts, but wrongly interpreted their character; they are readily discovered in the hoof of an adult horse, by following the straight course of a frog fibre, when their very tortuous direction may be made out. By the careful examination of fine sections of frog which have been hardened in spirits of wine, and subsequently steeped in carmine tincture, the glomerules and ducts of the glands can be distinctly perceived; around the latter the carmine may be seen flowing. When treated with a weak solution of nitric acid, the glomerule of the gland is beautifully displayed.

In a recent number of the *Gazetta Medico-Veterinaria* of Milan, Professor

Sertoli points out that Count Ercolani, Veterinary Professor in the University of Bologna, in a paper entitled "Osservazioni anatomo-fisiologiche intorno all organo keratogene," published in the *Giornale il Medico Veterinario* for 1861, mentioned the glands situated in the vicinity of the horn in these precise terms: "The stratum of dermis lying above the frog, and that of the sole of the foot of the horse, is copiously supplied with sudoriparous glands, which, by their form, no less than by the matter secreted in them, really act as sebaceous glands. What seems specially worthy of remark with regard to this fact is, that the excretory duct of the gland does not cease at the limits of the dermis, but passes beyond it, and penetrates the cells of the horny tissue of the part indicated, through layer after layer of the horn cells, which afford it an external corneous covering."

In the last issue of the *Deutsche Zeitschrift für Thiermedicin* (that for June), Professors Fogliata and Vachetta, of Pisa, in claiming for Italy the credit of having first pointed out the existence of the glomerules of glands in this region, add that they believe the use of these is to maintain the horn in a soft and elastic condition; they also make the interesting statement, that in a limited portion of the sole of the dromedary's foot are found similar glands.

(The discovery of these glands is of some value in a pathological point of view, as their ducts open upon that part of the frog in which the unpleasant condition popularly designated "thrush" commences, and the disease is in all probability due to derangement of the function of the glands or obstruction of their ducts.)

ABSENCE OF THE LUMBAR AND CAUDAL VERTEBRÆ IN A CALF.

By Hartmann.

(*Œsterr. Vierteljahresschrift f. Wissenschaftlichen Thierheilkunde.*)

Hartmann, in the *Œsterr. Vierteljahresschrift für W. Thierheilkunde*, describes an anomalous condition in the anatomy of a calf which came under his observation, and consisted in: 1. The complete absence of the lumbar vertebræ; 2. The continuation of the spinal cord, after leaving the dorsal vertebræ, in the form of a long white mass about the thickness of a goose-quill; 3. The existence of a bone irregularly triangular in shape, fixed by ligaments to the inner angle of each ilium, and traversed by the spinal cord. This long bone, which was about an inch in thickness, represented the *sacrum*, which had been arrested in its development. Its shape, situation, and relations with the spinal cord—which disappeared in the caudal region—were a proof of this.

THE DEVELOPMENT OF TISSUES.

By Dr. Beale.

At first, all that is to be seen is a number of masses of bioplasm which divide and subdivide. Each mass of bioplasm, by virtue of its inherent vitality, continues to produce successors in regular series, and at a certain rate,—and a limited range of change in external circumstances, being, as it were, allowed for, does not affect the result.

After the process of multiplication has continued for a certain period of time, each portion of bioplasm undergoes change upon the surface, and produces formed material. The arrangement and shape assumed by each particle will in some measure be determined by the growth of neighbouring masses and the pressure that may be exerted, as well as by a number of other circumstances. Indeed, the general form of the organ or tissue is determined chiefly by the inherent vital powers of each individual portion of

bioplasm out of which it is formed, but in part by the growth of contiguous organs or structures. Whether the elementary part shall be drawn out like tendon, muscle, or nerve, flattened, many-sided, or oval, like certain forms of epithelium, will depend upon its connections, which were determined at a very early period, and whether it be subjected to stretching or pressure. If free to grow equally in all directions, as in fluid, the mass will certainly be spherical. Many questions, however, that might be asked with reference to many of the matters to which I have briefly adverted cannot, in the present state of our knowledge, be answered, and are likely to remain unanswered for a long period of time.

PATHOLOGY AND MORBID ANATOMY.

LEUKÆMIA IN THE DOG.

BY INNORENZA.

(*Annales de Méd. Vétérinaire.*)

MASTRONARDI INNORENZA, of the Naples Veterinary School, in the *Giornale delle razze degli animali utili e di Medicina Veterinaria*, after giving some general indications as to the nature, etc., of Leukæmia, describes an instance of this disease in a dog. The symptoms were those of combined lienal and lymphatic Leukæmia. The animal died. Innorenza was inclined to attribute the development of the malady to the alterations due to the disease of young dogs commonly known as "distemper," the manifestations of which had preceded those of Leukæmia in this case.

ECHINOCOCCI IN THE COW.

BY ADAM.

(*Wochenschrift für Thierheilkunde.*)

ADAM, of Augsburg, relates the remarkable case of a cow, ten years old, of medium size and in tolerable condition, which, when slaughtered, was found to have its liver increased to the great weight of 92½ pounds, and literally crammed with *Echinococci*, from the size of a nut to that of a child's head. The whole organ, in fact, was nothing but an immense agglomeration of bladders containing the hydatids, and a very limpid colourless fluid. The lungs were likewise invaded by a great number of these parasites, but the cysts did not exceed the size of a large nut.

It is very remarkable that, during life, the animal did not offer the slightest indication of disease.

In the slaughter-houses, it is not at all uncommon to find these bladder-worms in the organs of animals killed for food, and the Echinococcus disease is then easily recognised ; but Adam observes that he never before witnessed such an extreme number of these entozoa in one animal.

THE INHALATION OF INFECTIVE PARTICLES IN RESPIRATION.

BY FALGER.

(*Glasgow Medical Journal*, April, 1875.)

FALGER, in Virchow's *Archiv* for September, 1874, writes on this subject : The power which the lungs seem undoubtedly to possess of resisting the

introduction of the poison of many infective diseases, is ascribed by some to the ciliated epithelium which lines the greater part of the air passages. If, as seems likely, the infective material is in the form of microzoa, which are minute solid particles, then one can understand how the mucus on the surface of the air passages catching these particles, the cilia should gradually sweep mucus and particles outwards. Falger points out that when the passages are intended to subserve respiration alone, as the nose, larynx, trachea, and bronchi, they are lined with ciliated epithelium. But where a passage is used for the introduction of food to the stomach and air to the lungs, it has a pavement epithelium, as in the mouth and pharynx. In breathing by the mouth, the whole surface down to the larynx is covered with flat epithelium, and if the above views are correct, would more likely be the seat of development of infective particles. But then the front part of the mouth is being constantly swept by the movements of the tongue, etc., and is therefore much less likely to allow of the settlement of these particles. The back part of the mouth, however, and the pharynx, have neither ciliated epithelium nor these advantages. One would therefore infer that the palatine arches, tonsils and pharynx, certain parts of the larynx, and the vocal cords, would be more frequently affected primarily by infective diseases than other parts of the alimentary and respiratory tracks; especially as most of these are exposed to the current of air, whether inhaled by the nose or the mouth. It is to be noted that in many diseases these parts are actually affected at the onset, as in scarlet fever, variola, varicella, measles, and rötheln; in others the disease affects these localities throughout its course, as in quinsy, suffocative catarrh, and diphtheria. The author suggests that in all infective diseases the air should be disinfected around the patient, so as to prevent their spread. Carbolic acid is that which he most strongly recommends.

APHTHOUS DISEASE IN HORSES.

By Sondermann.

Our friend, A. Sondermann, Veterinary Surgeon to the Bavarian Court at Munich, had occasion to remark on the occurrence of several cases of Aphthous disease in horses during the autumn, the symptom being at first inflammation of the buccal mucous membrane, particularly that at the inferior parts of the tongue, which bore a great resemblance to the aphthous inflammation of bovine animals. He attached no importance to these cases, however, as a few washings with carbolic acid solution effected a cure. But within a short period in the month of August last, thirty-four horses on the same farm manifested great tenderness of the mouth, redness and inflammation of the buccal mucous membrane of the lips, hard palate, and beneath the tongue inflammation of the follicles, the prompt formation of vesicles from which the epithelium was easily detached,—in a word, all the symptoms described by Röll under the heading of "Contagious Disease of the Mouth of Horses."

During the course of the malady, several of the horses had a very strong fever, while others had slight colic; nearly all, however, preserved their appetite. The treatment consisted, besides sloppy diet and sulphate of soda, of gargles of alum solution, and carbolic acid lotion for the parts most severely involved, followed by dressings with nitrate of silver solution.

No particular cause could be fixed upon for this outbreak, but certainly contagion by direct contact played a large part in its extension. It was remarked that the first ten horses affected were five years old. Sondermann, and a groom who attended to the sick animals, suffered from the transmitted disease, several fingers being the seat of abscess, and the inflammation was accompanied with lymphangitis of the arm.

SURGERY.

DOUBLE INGUINAL HERNIA IN A DOG.

By FRIEDBERGER.

IN the *Zeitschrift für Prakt. Veterinäar Wissenschaft.* for January of this year, Professor Friedberger describes the case of a bitch, seventeen or eighteen years old, which had a double inguinal hernia of a very considerable size, and was confided to his care in October, 1874. Although warned that there was very little chance of an operation for the reduction of the hernia being successful, the owner consented, in the expectation that it might ensure a radical cure. After putting the animal fully under the influence of chloroform, Friedberger first opened the left hernial sac, which was found to contain—1. The whole of the left cornu of the uterus, with the serous folds attached thereto, and which were abundantly provided with adipose matter; 2. A considerable portion of the small intestine; 3. A small portion of the omentum adherent to a part of the sac.

The right hernia was then opened, and in it were—1. A considerable portion of the omentum enclosing the other organs contained in the cavity, and also adhering to the hernial sac; 2. The bladder greatly distended with urine; 3. The whole of the right uterine cornu; 4. A loop of intestine measuring one centimetre and a half.

The two hernial cavities were lined throughout by the peritoneum.

The reduction of the extruded parts was more easy on the left than the right side, and was accomplished without the necessity of enlarging the internal ring. After they were all returned to the abdominal cavity, the neck of the hernia was closed by suture.

Unfortunately, however, the poor creature died nine hours after the operation. Fourteen hours after its decease, Friedberger made an autopsy, and noted the following appearances: The body was very fat, and the inguinal canals completely intact. The two hernial necks, situated symmetrically on both sides of the middle line, were of about equal dimensions (3 to 3½ centimetres long), and were formed by the orifices corresponding to the inguinal rings of the male; consequently, they opened close to the point of attachment of the round ligaments. The borders of the abdominal orifice were rounded, and in shape something of a slit; traces of an old and somewhat extensive tear were visible in the aponeurotic layer of the great oblique muscle. In the abdominal cavity was about two table-spoonfuls of a dirty-looking reddish fluid, and in parts the peritoneum had lost its shining appearance. The large abdominal and all the intestinal veins were gorged with pitch-like blood; while all the organs which were before enumerated as contained in the hernial sacs, had the same appearance as at the moment when they were reduced, and their situation was normal; they were recognised by the greater vascularisation of their surface. The mucous membrane of the small intestine was healthy; the spleen and liver were congested; the greater part of the pancreas looked exceptionally white, and at these pale places the glandular lobes were hypertrophied. The kidneys were more consistent than usual, and affected with fatty degeneration; otherwise they were normal. The bladder was empty, and firmly contracted; the mucous membrane of the right uterine cornu was greatly tumified, of a dirty-brown colour, and covered with echymoses; that of the left cornu was normal. There were hæmorrhagic spots on the thoracic aorta; the lungs were increased in volume, of a dark-red hue, very slightly crepitant, and full of blood and sanguinolent and spumous serosity; the cardiac veins and right ventricle were distended by dark and slightly coagulated blood; there was a trifling clot in the left ventricle. The cranium was not opened. Although the autopsy was made only fourteen hours after death, and the carcase had been kept in a cool place, there were already quantities of actively moving mycothrix.

In this case we have an inguinal hernia remarkable in consequence of its being double, and containing relatively numerous and voluminous organs. The non-success of the operation—the promptly fatal termination—was evidently due to commencing Septicæmia, as well as to disturbance in the pulmonary circulation, and perhaps in the brain. This circulatory disturbance must have been determined by the rapid and considerable increase in the contents of the abdomen, through the return of the prolapsed viscera, which must necessarily have brought about a pulmonary and cerebral congestion, in consequence of the pressure on the large abdominal organs, and the pushing forward of the diaphragm.

If another case of this description presents itself, Friedberger announces that he would prefer operating on only one side at a time, and allow some weeks to elapse between the operations.

ENTEROTOMY.

By Devleeschower.

(*Annales de Méd. Vétérinaire*, June, 1875.)

According to Devleeschower, puncture of the horse's cæcum is not such a serious operation as is sometimes supposed. A mare was suddenly attacked with colic, due to indigestion, and notwithstanding the repeated administration of stimulating draughts, the animal remained greatly tympanitic. Enterotomy was practised, and the distended flank subsided. But the stomach was not relieved of its contents, and it was necessary to administer six grammes of tartarised antimony at first, and two ounces of aloes with five grammes of tartarised antimony afterwards, in order to obtain a favourable result. The canula was removed, and over the wound was placed a plaster of shoemaker's rosin. After being kept on soft food for eight days, all traces of the disease and the operation had passed away.

CANCER IN THE SCROTUM OF A DOG.

By Professor Trinchera.

(*Giornale delle razze degli Animali utili e di Med. Veterinaria.*)

In his clinical résumé, Professor Trinchera, of the Naples Veterinary School, relates the cure of a superficial cancer in the scrotum of a dog. The pathological neoplasy was, along with the testicles, entirely removed by the knife, the wound being afterwards dressed with the chlorate of potass. A cure was rapidly effected.

BLOOD TUMOURS (HÆMATOMES) ON THE DOG'S EAR.

By Trinchera.

(*Ibid.*)

Trinchera recommends, in the treatment of these oftentimes troublesome tumours, that after they have been incised, and the sero-sanguinolent fluid evacuated, a portion should be excised from the border of the wound, in order to hinder the too rapid adhesion of its lips. This precaution is invariably followed by a complete cure.*

* (For several years we have treated these *Hæmatoma auris* by snipping out a triangular portion from near their centre, with a pair of ordinary rowelling scissors. This allows the thin venous blood they contain to escape, and leaves an opening through which subsequent fluid may drain. A cap worn over the head is of great assistance in effecting a rapid cure. In man their presence has frequently been noted as a concomitant of insanity, and has sometimes been ascribed to functional disturbance of the sympathetic nerve in the neck. In the dog no such relationship or cause can be traced; we have only witnessed them in animals with long heavy ears, and have always been of opinion that they were of traumatic origin—produced, in fact, by the shaking of the head and flapping of the ears. —Ed. *V. J.*)

MATERIA MEDICA, THERAPEUTICS, AND CHEMISTRY.

CHANGED ALOIN AND THE RESIN OF ALOES.

BY DR. CRAIG.

(*Edinburgh Medical Journal*, May and June, 1875.)

IN 1851, Messrs. Smith, of Edinburgh, discovered a crystalline principle in aloes, to which they gave the name of "aloin," as it was supposed by them to be the active principle of the drug; and it is now recognised as the most important constituent, because it has been clearly proved to be an agent upon which the aloes depends for its therapeutic action. It occurs in beautiful crystals, which are supposed to be a hydrid of the amorphous aloin, and constitutes about twenty-five per cent. of aloes. In 1872, when preparing a specimen of aloin for the Vienna Exhibition, the Messrs. Smith took four ounces of aloin and dissolved it, with a view to recrystallization, in order to obtain very pure crystals of aloin. From this solution two ounces of very pure crystals were obtained. The residue was set aside for eight months, when it was found that a substance had formed, easily reducible to a fine powder. This substance was uncrystallized, and in appearance not altogether unlike the resin of aloes. To this substance Dr. Craig has given the name of *changed aloin*.

In addition to aloin, Messrs. Smith have recently succeeded in obtaining from aloes a volatile oil, which is present in only a very small quantity in the drug, one ounce being all that was obtained by them from four hundred pounds of aloes. This oil has a resemblance in taste and smell to oil of peppermint, and to its presence is due the odour of aloes. Another important constituent of aloes is the *resin*, which is deposited when a decoction of aloes cools. This often contains a variable proportion of aloin. The *aloin*, *changed aloin*, and pure *resin* were experimented with by Dr. Craig on rabbits and people, and the results are summed up by him as follows: 1. That *aloin* may, by exposure to the air, undergo considerable chemical change, without losing its physiological action as an active aperient. 2. That the *resin* of aloes, when thoroughly exhausted of aloin, possesses no purgative properties, and therefore cannot be the active principle of aloes. 3. That the *resin* of aloes is not the cause of the griping which sometimes follows the administration of the drug. 4. That *aloin* is an active aperient, and is in all likelihood *the active principle* of aloes.

THE LOCAL TREATMENT OF DISEASES OF THE RESPIRATORY APPARATUS IN THE DOMESTICATED ANIMALS.

BY PROFESSOR FRIEDBERGER.

AFTER some general considerations on the utility, as well as on the mode of action and the employment of inhalations, Professor Friedberger, in the *Wochenschrift für Thierheilkunde and Viehzucht* for 1874, relates in great detail some of the interesting experiments he made with the view of establishing the efficacy or otherwise of the inhalation of various medicaments in the treatment of disease in different parts of the respiratory apparatus. The mode of practising these inhalations on animals, and their results in the hands of Pietra-Santa, Brian, Armand Rey, and Demarquay, are noted and commented upon, and the Professor then informs us that in his hospital he has had an apparatus specially contrived for administering inhalations to animals. The medicaments he has employed in a pulverulent condition have been—a solution of tannin, one to four per cent. of water; carbolic acid, one to two per cent.; nitrate of silver, half to one per cent.; chloride

of sodium, five per cent.; fine sal ammoniac, five per cent. The solutions were tried at a temperature of 60° (140° Fahr.); when pulverised, at a distance of one decimetre they were 45° to 40°, at three decimetres they were 35° to 30°, and at five decimetres 30° to 25° Centigrade.

While recognising the imperfection and insufficiency of his own experiments, which tend to confirm those of preceding experimenters, and particularly Brian and Waldenburg, Friedberger believes himself to be justified in coming to the following conclusions :—

1. The pulveriser is well adapted for applying medicaments to the buccal mucous membrane, and employed with this object it is preferable to injecting instruments. It is equally well adapted for the application of medicaments to the nasal and pharyngeal cavities, though for the latter the solutions must be very diluted, inasmuch as the medicament acts in a prolonged and intense manner on the inferior portion of the cavity. It is probable that the spray or vapour does not penetrate the frontal sinuses when the mucous membrane is tumefied, however slightly. Only a small quantity of the pulverised liquid passes into the pharynx, and very probably none at all into the larynx.

2. The employment, by means of the pulveriser, of solutions of non-volatile medicaments, is of little utility in the treatment of nasal affections in the dog; it is almost useless in the treatment of diseases of the pharynx, and the more deeply-seated respiratory organs.

3. In the inhalations of watery vapour—however they may be accomplished, whether after the old custom or by means of the pulveriser—the greater portion of the vapour is condensed and precipitated at the entrance to the nasal cavities, from which it escapes in drops; only a minimum quantity of the finest vesicles is carried with the watery vapour, properly so called, into the meatuses, and owing to the very favourable conditions for the condensation of vapours to be found in these—long narrow canals as they are—they are precipitated therein in such large quantity that only a small number reach the pharyngeal cavity.

In the respiratory organs more deeply situated, it is very probable that watery vapour only (not in the vesicular condition) is received : that is, this vapour submitted to the same laws of expansion as gases, and of which the atmosphere contains as great a quantity as its temperature is elevated. The temperature of the inspired air cannot exceed a certain degree, and vesicular vapour may be brought to this temperature (104° Fahr.) by the ordinary method of inhalation, as well as by the pulverising apparatus; therefore it must be admitted that the effect produced will be the same, whichever method is adopted. The pulveriser may certainly be employed in infirmaries; and indeed in these establishments it is to be preferred, for the inhalations can be more simply and properly administered. Nevertheless, Friedberger is of opinion that the old system may satisfactorily meet the exigencies of practice, provided that whoever employs it does not do so clumsily and carelessly.

PROMPT MEANS FOR DESTROYING HAIR.

By Dr. Boettler.

According to Dr. Boettler, the hairs on a particular region may be readily destroyed, in applying over it, by means of a spatula, a small quantity of a mixture composed of one part of crystallised sulphohydrate of soda and three parts pure carbonate of lime, the whole mixed up with a very little water. A few minutes after the application the hair becomes hard, and is converted into a morbid mass, which is easily removed by washing with water.—*Indipendente. Annales de Méd. Vétérinaire.*

Abstract of the Proceedings of Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

AT a Special Meeting of the Royal College of Veterinary Surgeons, held on May 25th, the President, Edward Coleman Dray, Esq., in the chair, letters were read from Professor Simonds, and Messrs. Dray, Broad, and Balls, acknowledging the honour of their re-election as Members of Council at the Annual Meeting.

In answer to Mr. Moore's question, as to the cause of absence of Mr. Wilkinson from the Royal College examinations at Edinburgh in April, the Secretary stated that it was due to indisposition, and that Mr. Wilkinson, the principal veterinary surgeon to the army, performed the duty instead.

Mr. Harpley proposed Colonel Sir Frederick Fitzwygram, Bart., as PRESIDENT for the ensuing year, adding that he believed him to be competent to carry out the duties of that office in a manner that probably no one at the present time could do. Besides, he was not only a friend to the Scotch schools, but also to the London school. Mr. Harpley's proposition was seconded by Professor Simonds, though not for the reasons assigned by that gentleman. No other name having been proposed, on being balloted for, Sir Frederick was declared unanimously elected. On taking the chair, the new President briefly thanked the Council for the honour conferred upon him.

The following gentlemen were elected Vice-Presidents : Messrs. Withers, McCall, Mayer, Cartwright, Lepper, and Lawson. Mr. Withers was re-elected Treasurer, and Mr. Coates, Secretary. This concluded the business of the first portion of the Special Meeting.

The second portion was devoted to the election of an examiner on physiology, in the place of Dr. Sharpey, F.R.S., who resigned on account of failing vision. His resignation was announced to the Secretary in the following terms :—

"I request you will kindly intimate to the President and Council of the Royal College of Veterinary Surgeons, that I now withdraw from the office of examiner with which they have so long honoured me. In taking this step, I look back with most agreeable feelings to the friendly and instructive intercourse I have enjoyed with the gentlemen with whom I have been associated in discharging the duties of my appointment. With earnest wishes for the continued prosperity of the two colleges, and in the confident hope that their well-directed efforts to improve the qualifications of the young men entering the veterinary profession will be crowned with success, I remain, etc., "W. SHARPEY."

Mr. Fleming, in moving that Dr. Sharpey's resignation be accepted, proposed that the thanks of the Royal College be accorded to him for his long and valuable services to it, and particularly for the very prominent and beneficial part he had taken in its examinations. He thought Dr. Sharpey was one of the warmest friends the Board of Examiners could have had ; and he must acknowledge that, having examined with him at the same table for the last two or three years, he was one of the best examiners he ever met with. He was certain that his resignation would be accepted by the profession with very much regret, and he would like to add to the motion that the Royal College was extremely sorry to learn that the cause of his resignation was due to impaired vision. The motion being seconded by Professor Pritchard, was carried unanimously.

Professor Simonds proposed Dr. Pavey as a successor to Dr. Sharpey. He had been associated with him some years ago in some experiments, and thought he would make an excellent examiner.

Mr. Fleming proposed Dr. Burdon Sanderson for the vacancy. He was one of the first physiologists in Europe, and had made the diseases of animals a special branch of study. Dr. Pavey was chiefly known through his researches on digestion, and he did not think he was distinguished in connection with the physiology of the lower animals. It was most important that a man who makes the physiology of animals his special study should be appointed as an examiner. A human physiologist, he thought, was rather out of place.

On the ballot being taken, Dr. Burdon Sanderson was declared duly elected.

The Secretary drew attention to the death of one of the oldest members of the profession, Mr. Burley, of Leicester, and suggested that a letter of condolence should be sent to his family. This was agreed to.

The report of the examinations for the Fitzwygram prizes was read, and Mr. Fleming described the arrangements that had been made for carrying them out successfully; he also laid before the meeting copies of the printed papers relating to the examinations.

Professor Simonds submitted to the Council the name of Mr. W. S. Boswell, a graduate of the Ontario Veterinary College, who had visited England with the object of becoming a member of the Royal College of Veterinary Surgeons, and whose professional position was vouched for by Mr. Smith, Professor in the Veterinary School at Toronto. That gentleman stated that Mr. Boswell was the first graduate who had gone to England with this intention; that some years ago Professor Buckland, of the Toronto University College, arranged with Professor Spooner that candidates of this description would be eligible for the diploma of the Royal College by attending one session at the London or Edinburgh schools. According to the existing bye-laws, Mr. Boswell was in exactly the same position as students at the veterinary schools, and Professor Simonds said this was a case in which something should be done by the Council. At a meeting of the governors of the Veterinary College, held on the previous Saturday, they consented that Mr. Boswell should be allowed to attend the lectures while arrangements were being made with the Royal College.

Mr. Harpley inquired what would be the procedure in a similar case occurring in the medical profession. Professor Simonds could not answer the question; but he was of opinion that the Council should not be guided by what other people did, but legislate for themselves for the benefit of the profession. After some further discussion, Mr. Cartledge proposed that Mr. Boswell be reckoned eligible for passing his examination, and Mr. Broad seconded the proposal; when Mr. Fleming asked if this would not be infringing the bye-law. On this Professor Simonds suggested that the better way would be to suspend the bye-law for the first pass examination, in order that Mr. Boswell might present himself for his final examination, and in this way the Council would be put to less expense.

Mr. Fleming drew attention to the case of Mr. Clayton, who was a graduate of the Alfort School, and who, after studying for one session in London, was allowed to present himself for examination; but at that time the mode of examination was very different to the present system.

After more discussion, the President said he was of opinion that the suspension of the bye-laws should be resorted to as little as possible; and although in this particular instance it might be done, he thought a committee should be appointed to consider the general question of the admission of foreign graduates into the profession. He suggested that the words, "provided the certificates were satisfactory," should be added to Mr. Cartledge's motion. The motion was carried.

Mr. Field proposed, and Mr. Fleming seconded, a motion to the effect that

a committee should be appointed to inquire into the general question relating to the terms upon which foreign students should be allowed to pass. This also was carried, and the President (*ex officio*), Professor Simonds, and Messrs. Field, Harpley, and Fleming, were appointed members of the committee.

The Charter of the Royal Veterinary College was next considered, and the omission of the words which the Royal College had thought necessary to be inserted in some of the paragraphs as a security for the protection of the rights and privileges of the Body Corporate, and the insertion of which had been agreed to by the governors of the school, as well as the Government, was discussed.

The Secretary gave the history of the inquiries that had been made as to the cause of the omission, from which it appeared that it must have occurred at the Attorney-General's office. An application had been made for a copy of the Charter, but it could not be procured. In reply to Mr. Hunt, the Secretary said the council was not in possession of a copy. On this Professor Simonds produced a copy, which, he said, he had promised the President as soon as it was printed, after it had been compared with the Charter itself. He had only twelve copies for the Governors and the ordinary committee, and he forwarded one of these to the President ; but he subsequently discovered that, owing to errors in names, a reprint had to be made. The ex-President also produced a copy. It did not appear, however, that these were official copies, as they were not in any way tendered as such.

Mr. Dray, in mentioning that he had received a corrected copy from Professor Simonds, stated that at the Annual Meeting he assured those present that the clauses as altered were inserted, and he conscientiously believed they were, or he would not have made such a statement ; he had done so from the representations made to the Council by the Parliamentary Agents. Mr. Harpley, in explanation of the active share he had taken in the matter, described the result of his visits to the Parliamentary Agents and the Home Office, from which it appeared that the omission must have occurred with the clerk who engrossed the Charter. He moved that the President be asked to carry on the investigation as to where and how it was that the omission had taken place, because he thought there was an infringement upon the Charter of the Royal College of Veterinary Surgeons, and that clause 13 left a loophole which even the Governors themselves did not desire. So anxious was he in the matter, for the welfare of the profession, that further inquiry be made, that he would not rest satisfied until he received some intimation which would relieve his mind, or until the question was asked in the House of Commons. He requested to be informed by Professor Simonds if it was the intention of the Governors of the Veterinary College to appoint licentiates before the students had obtained the diploma of the Royal College of Veterinary Surgeons.

Professor Simonds replied that he could not answer the question until the Annual Meeting was held, and action had been taken under the Charter with regard to the framing of the bye-laws. He knew, however, that the principle which would actuate the Governors in the framing of the bye-laws would prevent any conflict with the interests of the Royal College.

Mr. Harpley said that it was only due to the Royal Veterinary College, and the Royal College of Veterinary Surgeons, that every inquiry should be made ; and he concluded with his motion to the effect that "the President be requested to continue the investigations into the matter." Mr. Field, in seconding the motion, thought that the Charter had been granted in such a form as neither the Governors nor the Council wished it.

Mr. Fleming thought that throughout the whole affair the Council had been entirely misled, and that dust had been thrown in their eyes. He confessed

to a feeling of great regret, and very much disappointment and vexation in the whole matter. He particularly referred to the Annual Meeting as an instance in which the profession had been deceived, by the withholding of information with regard to the Charter, which was known some days before, and ought to have been made known then; but which was tendered at the annual dinner a few hours afterwards, to his surprise and indignation, when the reason for its concealment had passed away.

The motion was put and carried.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE meeting of this Society was held at Stafford on June 1st, when, other business having been transacted, Mr. Thomas Greaves, the newly-elected President, delivered his inaugural address. After referring to the honour done him by the Association, Mr. Greaves proceeded to the consideration of the past and present condition of veterinary medicine and surgery; and his opinion was, that, on the whole, satisfactory progress has been made in recent years, and that veterinary education is improving. A strong appeal was made for contributions to the Veterinary Mutual Defence Fund and the National Benevolent Society; and reference was made to the benefits to be derived from the associations now in existence, and the necessity for supporting them, and diligently attending their meetings. The subject of veterinary education was alluded to, and the value of practical knowledge strongly insisted upon, even to the omission of the higher branches of general education. A quotation was given in favour of this view from the "Recollections of Past Life," by Sir Henry Holland, wherein he says: "I went through the customary routine of lectures, demonstrations, clinical practice, and the less profitable teaching of books, learning at a later period (for it requires time for the lesson) that actual experience, with a sense of responsibility attached to it, is the sole school in which to make a good physician. One of the most learned men I ever knew in the literature of medicine, as well as in physical science, was one of the worst practitioners; borrowing his diagnosis from books, and not from that happier faculty, almost an instinct, and which enables us to interpret and act upon signs which no book can describe. Various improvements may doubtless be made in the method of medical education, but the subjects in themselves are so subtle and complex, and so blended with the diversities of human character, that no teaching can be really effectual which does not include a certain amount of personal experience and responsibility, conjoined with the talent for comprehending and applying its results. . . . . The topic is one which needs not the authority of any prior age, resting as it ought to do on the common sense of mankind, and requiring only that this common sense should be rescued from the fetters which fashion and technical forms impose upon it. The prescriptions of the scientific and classical practitioner, however learned in its Latin and its pharmacy, is but a slender part of his professional duty. Of far greater import generally to the patient is his watchfulness over sanitary conditions, such as temperature, ventilation, cleanliness, and quiet. There is great room for improvement, and especially amongst those young in practice, who, coming fresh from the formal institutions of books, lectures, and examinations, rest too much upon old names and old opinions, and lack that better learning which experience alone can give." Mr. Greaves, in his observations, endorsed and illustrated these opinions and views of Sir Henry Holland.

With regard to the "apprenticeship system," Mr. Greaves professed himself as entirely in favour of it, and asserted that he believed that eight of every ten veterinary surgeons would agree with him in this respect.

Coming to the Board of Examiners of the Royal College of Veterinary Surgeons, the speaker intimated that he thought the time had come when we should cease electing medical men, notwithstanding their position, and that the board should be wholly composed of veterinary surgeons.

Alluding to the Charter of the Royal Veterinary College, Mr. Greaves said: "The professors and governors of the above college have petitioned Government, and have obtained a Charter of incorporation for their teaching school. It was thought by some that certain clauses in this new Charter would interfere with some of the rights and privileges of the Royal College of Veterinary Surgeons, by empowering the teachers to confer certificates of fellowship, licenses, and honorary foreign associates, upon students before they had been examined by the Court of Examiners, or obtained their diploma. It was considered that many students would take their certificate in lieu of a diploma. Certain alterations were suggested by the Council to obviate this objection; the governors consented to these alterations, we are told; the Crown lawyers struck them out, saying they were unnecessary. So the Charter is granted without such alterations, and the majority of the Council feel very sore upon this matter. From first to last there appeared a desire for secrecy—a desire to withhold from us information about it; then we find, just when everybody had agreed that the alterations should be inserted in the clause, that there is some sleight-of-hand work put forth, and they are at once and finally omitted. On making inquiry, the Solicitor-General and our lawyer say they fully believed the alterations were made and retained; the engrossing clerk could not be met with. At all events, we have been deceived and betrayed; it looks like treachery. The President, Mr. Dray, at the Annual Meeting, publicly assured us that the alterations formed part of the Charter; but Professor Simonds informed us, a few hours later, that such was not the case."

Reference was also made to Sir Frederick Fitzwygram's prize donation; likewise to the scheme now before the Royal College of Veterinary Surgeons to grant higher degrees in veterinary medicine. Altogether the address, which was of considerable length, must have proved interesting and instructive to those who were present at the meeting of this important veterinary medical society.

CENTRAL VETERINARY MEDICAL SOCIETY.

AT an ordinary General Meeting held Thursday, March 4th, 1875, at 10, Red Lion Square, Bloomsbury, at 7 p.m., J. Roalfe Cox, Esq., in the chair, the President drew attention to previous discussions on the treatment of sandcracks, and the introduction of wood or other material therein, and instanced a successful case where he had inserted a slip of horn cut from another hoof. Mr. Field, jun., said he used a composition very much resembling hoof: it was composed of ammoniacal gum ½, gutta-percha ½; and he found it answer well.—Mr. Joseph Woodger, jun., then read a paper on the "Causes of Farcy and Glanders." Taking 15 stables, containing a total of 265 animals, of whom 17 were the subjects of farcy, and 11 recovered; and 25 stables, containing 298 animals, chiefly cart-horses, of whom 51 were the subjects of glanders, and but two recovered,—he compared the average work of one stable with another, the quality of the food, also the time the cases remained with the other animals when known to be affected; and summarising them thus, is of opinion: that horses may become affected with the disease by spontaneous generation or by contagion—in the former the causes being very diverse, as excessive work, bad feeding, ill ventilated and undrained stables, debilitating diseases and severe shock to the nervous system; quoting

instances of such causes from the tabulated statement previously mentioned. In reference to contagion, he held the custom of passing the pail of drinking water from one animal to another, and of the greater liability of the glander virus being so passed through the stable and becoming attached to the mucous membrane of the nose, and so absorbed, as a more fertile source of disease; whereas in farcy, only the limbs being affected, the source of infection is not so general. The reading of the paper was attentively listened to, and the discussion thereon general; the legal questions and the veterinarian's liability being also alluded to in the discussion. Mr. Clark considered the mucous membrane as the seat of inoculation. Mr. F. J. Mavor assigned the cause of increase to the large number of drinking troughs existing in large towns. With reference to the morbific matter entering the circulation by mucous surfaces, experiments lately made with tuberculous matter had gone far to prove it. He believed in its spontaneous origin as a result of the degeneration of some of the animal tissues, chiefly that of the lung, and commencing with catarrhal symptoms; he also regarded the nose-bag as a well-known source. Mr. Gowing, sen., considered goats as a possible medium, from their habits of jumping in the mangers. Mr. Gowing, jun., referring to absorption by the alimentary tract as a cause, considered the gastric action would destroy the morbid matter by the acid decomposition; he believed the disease was often engendered by scratches and curry-combing.—Mr. Hunting said it was possible to coagulate vaccine lymph, yet it was as potent as ever. He believed solely in contagion; the whole of the causes assigned by Mr. Woodger are in daily operation in innumerable instances, yet there is no appearance of glanders. Making indiscriminate purchases he held as a likely source, illustrating it by reverting to increases in army returns at the commencement of a war.—Mr. A. Mavor considered the diseases were both contagious and infectious.—Mr. Bentley, of Margate, asked if the Fellows could explain why the diseases were not often met with at the seaside, as he seldom ever had a case in his practice.—Mr. Rowe, jun., thought he could satisfactorily answer that question—the reason being the existence in the atmosphere in large quantities of metalloids of bromine and iodine, both being agents indicated in the treatment of farcy; instancing also the custom of cabmen and others of sending suspicious and affected animals to the salt marshes near Plaistow, etc., turning them out to graze there; he did not consider absorption by the alimentary tract as a cause, but rather the more possible abrasion of the nostrils by the chaff and oats working up into them, especially when the nose-bag was used; he considered the exposure and irregular grooming the low-class horses are more subjected to as a source of liability to the diseases in question, and that dogs were more likely than goats to transmit it. Of the great possibility of absorption of the glander virus without abrasion, he cited an instance of a cabman becoming glandered to a horrible extent from using his handkerchief to wipe the nostrils of his horse, which was the subject of the disease.—Mr. Price also believed in its contagious and infectious nature, and instanced a case in which glanders occurred from shock to the system while breaking a horse in, by driving him through a pond; he opposed the use of disinfectants to the stable in the shape of lime washing, also of washing the same, as it tended to soften the wood, and render it more liable to impregnation, preferring rather to well scrape it, and expose it to the air. Considered fowls a possible cause; overdosing with aloes and clipping aged horses were also looked upon as causes.—The subject was then adjourned by unanimous vote, and the meeting closed. Present, thirteen Fellows and two visitors.

The next ordinary meeting was held April 8th, at 7 p.m., the President, J. Roalfe Cox, occupying the chair. The President observed that at the last

meeting there was a great tendency to encroach on the title of the paper; therefore on the present occasion Mr. Hunting would introduce some agenda referring to the diseases themselves. In re-opening the discussion, Mr. Wragg stated his belief in the spontaneous origin of the diseases, adducing that since last meeting a case had occurred that confirmed his opinion. A severe tread, culminating in open joint, and necessitating the animal's being put into slings, terminated with the appearance of glanders, the autopsy showing enlargement and softening of the liver, and the lungs studded with small roughened tubercles, the symptoms being nasal discharge, enlarged gland, and ulcerated nostrils.—The President thought the case rather an instance of pyæmia, the symptoms being nearly identical, the difficulty lying in previous knowledge of the subject.—Mr. Hunting summarized the case, and considered it as one of those instances where the symptoms were latent: a chronic case, where the exciting condition of system hastened its appearance. A letter was read from Mr. Bentley relative to the disease, and its consideration was deferred to next meeting.—Mr. Woodger, jun., in replying to the queries and statements made, affirmed his belief in drinking fountains being productive of dissemination. He believed in the curability of both forms of the disease; but the main question was whether it would pay. As to whether fever were a symptom, he had taken the temperature of very many, and often found no rise indicative of fever; in some cases, where the preliminary symptoms were allied to pleurisy, he found it so. He instanced a case where an affected animal had stood for some five months with four healthy animals, which were as yet unaffected. He recollected a case of inoculation with a curry-comb, when a small scratch on the back became a farcy bud, and the subject a bad instance of glanders; in most cases of diseased lung there was softening of liver. He considered Mr. Wragg's case as being glanders, though the lungs could not have assumed the condition described in so few days. A cordial vote of thanks was then awarded Mr. Woodger; and Mr. Hunting was called upon for his agenda in reference to treatment, etc. He differed entirely from Mr. Woodger as to the cause, holding it arose solely from contagion, and that it was so traceable in 95 per cent., that of the others being overlooked; he considered all horses equally susceptible; it was not possible always to detect early cases, and we are compelled to resort to the terms "doubtful" and "suspicious." Considered the first stages of farcy as very difficult of observation, they being so like lymphangitis, though the cough was suggestive. Chauveau shows that the poison of glanders is a material substance, and not volatile; and the commonest cause of increase is the frequent habit, either wilfully or ignorantly, of retaining the diseased animals in the company of sound ones. In French law, eighteen days are allowed for its appearance; our law is not so strict; and we are thus led to inquire what the term of incubation is. He thought it was from three to four weeks; and that period can be shortened by bleeding and purgatives to assist the diagnosis. In reference to treatment, he considered "the first loss is the best," even in all mild cases, and holds that it could be stamped out of England entirely by compulsory laws requiring instant destruction on its detection; also that all veterinary surgeons should report all cases, not to the local police, but to a central head, which would in no way interfere with private practice. As the law stands, a stable may be full of diseased animals, and no inspector can enter it even with a magistrate's warrant; but a combustible agent like petroleum can be readily seized. The penalties should be great, and always enforced, and three-fourths compensation given for cases of farcy, even such as the veterinarian would probably deem curable. In reference to disinfectants, he preferred boiling water to anything else.—The President could not admit the sole cause as contagion; for what of poverty and ill ventilation? One symptom Mr. Hunting had overlooked was an eruption on the skin, which

became somewhat tubercular and shot-like; he decidedly was in favour of destruction, as he cannot say he had seen a real case of recovery. An ordinary warranty in France is nine days; but this is special, in which ophthalmia is included, and it would be of great benefit if such were recognized in English law.—Mr. F. J. Mavor hoped to show that such cases could be treated with success, and that there were medical agents capable of so doing. He would take a physical view of the disease, with the opinions just enunciated: it was said there was a vital organism that, finding a suitable nidus, goes on increasing till the system is involved; if this be true, it is equally so of all so-called "specific" diseases; he differed with them, and could not regard it as specific; the disease affects the skin, mucous membrane, and glandular structures. His treatment consisted in attempted restoration of the diseased tracts, so as to check the formation of fresh virus, and not destroy that existing—which would then pass away as effete material in the ordinary manner. In sulphur and kali bichromicum were such agents to be found. A young horse, the diagnosis being glanders, was treated with kali bich. grs. 5, and sulphide of lime grs. 10, given thrice a day, and the buds dressed with iodide of sulphur; this suppuration was followed by recovery in one month; and another that had been overdosed by a farrier, was also so treated and recovered; another having no discharge, but only the buds, was also so treated, and recovered in three weeks. He quoted these cases, because during the ensuing twelve months these animals frequently came under his notice.—The usual period of the meeting being exceeded, the further adjournment of the subject was proposed and carried, and the meeting adjourned. Present, nine Fellows.

The next ordinary meeting was held Thursday, June 3rd, at 7 p.m.; the President, J. Roalfe Cox, Esq., occupying the chair. The letter received from Mr. Bentley at the last meeting was read, and having reference to the subject under consideration, was further added to by Mr. Bentley in person. His letter referred to a horse imported from France, which, being in low condition, with swollen limbs, etc., and having administered to it a dose of physic, it became the subject of farcy, and was destroyed on the 3rd August. During the few days his owner had it, it stood by another horse, which worked well during the summer, and was then turned into a strawyard with several others. Appearing unwell, it was removed home, and received a dose of physic, when farcy appeared, and getting into a bad state, it was destroyed on the 25th. Mr. Bentley was of opinion that the disease was contracted the previous July, and had since lurked in the system.—Mr. Fleming said he had had large experience of glanders in war time; during a campaign, no sooner were the animals exposed to certain influences, than glanders appeared, and no more harassing disease could exist; for while able to bear the pack they must take the field—where, owing to their close relations with one another, it frequently spread further. Provided the symptoms generally recognised as distinctive of the disease are present, diagnosis is easy; but he believed in its existence without those evidences, the absence of local symptoms being attended with great danger to others. He cited a case of its presence in a certain regiment, where a daily examination was made to detect the infecting animal; and finally an old horse was selected as suspicious, and being destroyed, it was found to be diseased, and no fresh cases appeared—prior to which the regiment had suffered some loss. Again, of a knacker buying a grey horse with a cough, and who, instead of destroying him, worked him in a cab he owned, till the driver refused to take him out, and gave the police notice—when the case was tried, with conflicting evidence, and finally decided by reference to a London practitioner, who, making a cursory examination after the nostrils had been well washed,

diagnosed it as a case of broken wind. He himself saw the horse, and found that the nose was well cleaned prior to its being shown, and that the gland had been excised, leaving a triangular scar. The case was dismissed, and the animal at once sent away to town, where all trace of it was lost. The people around had objected to the continued presence of the animal, as the symptoms were so suspicious : hence the action taken. The result was that the farmer first concerned, who sold the horse, lost six animals ; and the second purchaser, another farmer, lost a horse and pony !—The President related that he once gave evidence in a certain case, where, finding a diseased horse, he asked to see the others, and found one other affected. He advised the owner to have both destroyed, and give the police notice ; this was done, the inspector confirming the notice given. Another opinion being sought, however, a different verdict was given after a short examination ; but the animals were bound to be destroyed, himself and the inspector being present ; when their opinion was fully confirmed. It was therefore necessary to listen to the cough carefully, and notice the breathing. As an instance of how a case may be overlooked, he remembered three cases occurring in carriage horses belonging to the Marquis of Salisbury ; and having to attend at Hatfield House to examine the remainder, he had closely examined them without any results, when on leaving he noticed another that he had not seen, and was informed it was an old charger formerly belonging to the Duke of Wellington, and that it was a pensioner ; in this horse he found the disease in a chronic form.—Mr. F. Jarvis had had three animals affected : the first occurring in a three-year-old filly, which had been treated for strangles ; here there was no ulceration nor nasal discharge.—The Fellows were unanimously of opinion that Mr. Bentley's supposition of the cause of the appearance of the disease in the case he adverted to was correct. Mr. Bentley said he could almost always trace the diseased horses as coming from London.

The discussion being then closed, the meeting terminated. Present, six Fellows.

JAMES ROWE, JUN., M.R.C.V.S.,
Hon. Sec.

Notes and News.

CONTAGIOUS DISEASES (ANIMALS) ACT, 1869.—A supplement to the *London Gazette* issued on June 5th, contains two Orders in Council under the Contagious Diseases (Animals) Act. The first revokes a series of previous Orders in Council, and the second embodies new provisions for "better preventing the introduction or spreading of contagious disease among animals in Great Britain." These relate to the powers of the inspectors, the form of complaint and procedure before justices, the process of cleansing and disinfecting vessels, pens, trucks, vans, etc., and the disposal of carcases. Powers are conferred on local authorities to prevent the spread of pleuro-pneumonia, foot-and-mouth disease, scab, or glanders. A section regulating the transit of animals prescribes the size of pens on board vessels, the provision of food and water at shipping places, and the obligations of railway companies in these respects. The third part of the order specifies certain ports for the landing of foreign animals, and sets forth the conditions of detention, the detection of disease, and the disposal of diseased animals. The second schedule to the order gives a long list of stations at which railway companies shall be bound to provide a supply of water for cattle travelling on their lines.

OUR STOCK.—In horses, cattle, and sheep, the wealth of the kingdom is slowly increasing. The high prices recently ruling for horses seem to have stimulated breeding, and the stock of horses used for agriculture, unbroken horses, and mares kept solely for breeding—the only kinds included in the returns—has increased by some 35,000 in the year, and is greater now by 66,000 than in 1870. The stock of cattle, again, had grown by 161,000, a less increase than in 1873, but the number had grown by about 15 per cent. since 1871, and there are indications in various directions that the country is recovering steadily from the crippling effects of the cattle plague. This is probably the most encouraging fact about the present aspect of agriculture in this country; for imports of foreign cattle do not increase so as to help to lighten the strain which an enormously increased consumption has thrown upon graziers of late years. In spite of that drain, they are recovering ground, although any idea of cheap butchers' meat being attainable in this country must be put aside for a long time to come. The stocks of sheep also increase slowly; but the full effects of the drought years, 1868 to 1871, when stocks decreased by 3,590,000, are not yet fully obliterated. The demand for pork seems to be falling off; at all events, the number of pigs is on the decrease in England, and in other parts of the kingdom grows but slightly. This is accounted for partly by the preference of the working classes for beef and mutton, partly by the dearness of pigs' food.

In England, in 1874, the number of stock was as follows:—

Cattle	4,305,540.
Sheep	19,859,733.
Pigs	2,058,781.

For Ireland, the estimated value of all kinds of stock in 1874 was £37,225,887.

POISONOUS WATER.—It is reported from Bury, Lancashire, that two cows belonging to Mr. Cocker, farmer, Brandlesome Hall, have been poisoned through drinking water from a stream, a tributary of the Irewell, which ran down Kirklees, and on the banks of which there were several works and manufactories. The cows died in twelve hours after drinking the water. Any one who has seen the river Irewell would have no hesitation in believing that an animal which drank of its waters would be poisoned; the river is a filthy receptacle for all the dirt and sewage of Manchester, and it carries its poisonous organic ingredients for many miles before it falls into the Mersey. But wherever works, and especially chemical works, exist, the water is being poisoned, and the farmers are suffering. In our intercourse with tenant farmers, our attention has lately been drawn to the injurious effects of the refuse from tanneries being turned into streams. However, we are promised that the pollution of rivers and streams shall occupy the attention of Parliament; so we may hope that this growing evil will shortly be abated, and that the pollution and poisoning of the air by gases which are injurious to vegetation may also shortly be dealt with; for that, too, is a growing evil.—*Bell's Life.*

SCIENTIFIC INVESTIGATIONS.—A return has just been issued, showing the separate payments out of sums voted to the Department of the Privy Council Office for auxiliary scientific investigations during the past four years. The amount voted in each year was £2,000, and the nature of the investigations undertaken in the various years, with the reports made, were as follows: In 1871-2, investigation of infective inflammations; of tubercle, with study of the lymphatic system of serous membranes; and of the chemical changes in cases of typhus. Reports were made by Dr. Klein, Dr. Sanderson, and Dr. Thudichum respectively on these subjects. In 1872-3, investigation of tubercle continued, with study of the lymphatic system of the lungs; investigation of the febrile process; and of the chemical constitution of the brain.

A second report was made by Dr. Klein on the lymphatic system. In 1873-4, investigation of the febrile process; of the chemical constitution of the brain; of sheep-pox; and of cancerous infection. Reports were made by Dr. Klein, Dr. Creighton, Dr. Thudichum, and Dr. Sanderson. In 1874-5, the subjects of investigation were the febrile process continued; the chemical constitution of the brain, continued; of infective inflammations; of cancerous infection; as to the disinfection of contagious matters; and of enteric fever. A report was made by Dr. Baxter on disinfectants, and the following reports will shortly be presented to Parliament. Report by Dr. Sanderson, on the febrile process; further report, by Dr. Sanderson, on infective inflammations; further report, by Dr. Thudichum, on the chemical constitution of the brain; further report, by Dr. Creighton, on anatomical studies with reference to cancer; and report, by Dr. Klein, on the contagium of enteric fever. The payments made during the four years were—to Dr. Sanderson, £4,079, and to Dr. Thudichum, £3,322.

TEXAS CATTLE.—An English company, it will be remembered, was formed last winter for the establishment of a line of live-stock steamers for the shipment of beef cattle from Galveston, Texas, to British markets. The plans of this company, we now learn, have been carried out. The steamers, which have been fitted for the purpose of taking emigrants to Texas, and cattle back to Great Britain, have commenced their trips. These are now loading at Galveston with Texas cattle. The importance of this movement is very great. In the Southern States the matter is directing attention to the possibilities of the future of cattle-raising in all that section, with a view to an increased demand from this new source. Upon this subject the *Nashville Union* has the following:—"This is a new outlet, and may become one of immense importance to the South. When Georgia and South Carolina were British colonies, cattle and beef were sent from Savannah and Charlestown to London. In recent times, King Cotton has ruined the stock-raising business temporarily, in the best climate on the continent, for that industry—a mistake that will be remedied some of these days; for $2 will come to the landholder as easily from grass that needs no tillage, producing meat, horses, and wool, as $1 from any cultivated crop. There are six hundred million acres south of Mason and Dixon's line adapted by nature to grass. The idea of keeping cattle on a thousand hills, and having hundreds of miles of verdant meadows along such rivers as the Tennessee and Cumberland to supply any number of steamships with all the beeves they can take away, now seems Eutopian to many, but it will win in the end."—*New York Bulletin.*

CATTLE PLAGUE AT MOSCOW.—The *Contemporary News*, a Russian paper, asserts that the cattle plague has appeared at Moscow.

HORSES IN RUSSIA.—The number of horses in Russia has been estimated at twenty millions, or twenty-seven horses to every hundred inhabitants.

GERMAN ARMY HORSES.—In 1874, it was reckoned that the number of horses the German Federal Army could muster was 96,158.

Obituary.

OBITUARY.—We regret to announce the death by cholera, on May 5th, of Army Veterinary Surgeon W. Haselden, at Allahabad. This promising young officer, who was a pupil of the late Mr. John Lawson of Manchester, was an Edinburgh graduate, and became a member of the Royal College of Veterinary Surgeons in 1872. He was gazetted to the army on June 8th of the same year.

Correspondence, etc.

Centaur has not forwarded his name with his communication, and we therefore cannot publish the letter.

Letters of congratulation and encouragement, with promises of support to the VETERINARY JOURNAL, from numerous members of the profession and others, are gratefully acknowledged. The insertion of several communications is unavoidably postponed until next month, through pressure on our space.

RANDOM JOTTINGS ON CURRENT TOPICS PERTAINING TO THE PROFESSION.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—I have great pleasure in complying with your kind request of becoming a contributor to, and a subscriber for, your newly-projected periodical. And, as an earnest of my sympathy and sincerity in the matter, I beg to send you a few random jottings on some of the current topics pertaining to the profession, suggested by your prospectus, and which may perhaps fill up a gap, should any remain in your columns.

I do so in the full belief that there is room for a journal such as your prospectus announces, and because I have pleasure in endeavouring to assist the efforts of one whose principal aim, in all his writings and speeches, has been the elevation of the profession of which he is so distinguished a member.

Progress is a characteristic of the age in which we live: it is a universal condition of created being and intellectual existence. There is nothing really in a state of rest, nor is there any standing still. Even in the rude material world the same inexorable law greets us at every glance. Nor can we well resist the operation of this law, if we would try to save ourselves from intellectual death. In the regions of thought and consciousness there is no repose. The man of to-day is different from the man of yesterday. And this fact shadows forth the doctrine of human progress, and is one of the most pleasant and important which the mind can contemplate. We see the whole material universe in motion: the law of progress is upon it; and guided by that law, it moves on towards some grand consummation which, though ever nearing, it may never reach. And in this, our asymptotical progress, we mount to higher regions of intelligence, and at every step have a wider range of vision, until at length—though not at last—we gaze onward to see the *lines* receding, instead of approaching, through all space.

Ours is truly a Railroad Era. We hear now of projected lines that are to engirdle the earth and dive below the sea, with an assured faith that, if our lives are spared to their allotted limits, we shall survive to celebrate the achievement; and, perhaps, ere we close our eyes on this fair world, be permitted to spend our usual summer holiday on the site of the garden of Eden, or amid the uncovered ruins of Babylon.

It is also, and truly, an Electric Era. Among the numerous powerful agencies exerting a momentous influence upon human progress, none can equal the telegraph system which environs our globe, as the grand enlargement of the facilities of human intercourse.

Whether in process of time it may not be superseded by modes of intercommunion more spiritual, is not improbable, judging from the recent psychological manifestations. With all this ebullition of mind and spirit, it has often struck me as strange that the veterinary profession could not possess and sustain a weekly medium of intercommunication; and I am somewhat astonished to find that you only meditate a monthly one.

I trust you will soon be able to announce a weekly budget. The almost universal and rapid communication of knowledge and intelligence is unquestionably one of the great facts of the day, when great facts are common.

Early in the morning the reader of the newspaper of the day knows what the world has been doing in both hemispheres the night before, and almost up to the moment when the first gleam of light peeped in at his chamber window; for the latest flash of the telegraph brightens the despatch column of his favourite journal.

And, to say the least of it, it does seem strange that we should have to wait a month before we can know the proceedings of the Annual Meeting of our profession, and is scarcely in keeping with the spirit of the age.

Moreover, if we would try "to repair the injury" we, as a profession, have sustained in consequence of the deficiency or defects of our literature, we must endeavour to increase the quantity as well as improve the quality. The "slow coaches of literature," like the old public conveyances that steam has almost everywhere superseded, stand no chance whatever with the lightning vehicles of public opinion and information that modern energy has put upon the track. Impelled by the electric fire of enterprise, it never stops

to cool, but, keeping well up with the rush of events, records them as they fly, and the record is served up in print almost simultaneously.

If we would keep up with the sister science, we must needs have a weekly journal more devoted to the good of its individual members, and more actively supported by them; and thus a demand would be induced, as well as forming a record of their proceedings. I am convinced that numbers of important and suggestive cases are lost to the profession by their not being recorded; indeed, there is not a more interesting and important part in any scientific periodical than that in which the original communications and cases are found.

Surely it is not too much to expect that, from the increased culture and better facilities for study of our new brethren, they might record their experience for the good of their less cultivated fellows, and thus enrich your columns. Surely all their mental energies need not be expended in their efforts to cure, nor need they conceal the unexpended residue from public gaze, but rather send it abroad on the wide field of humanity as a benefaction to their species.

The veterinary profession in many of its phases seems to me too much like a close corporation, where every one works only for his own hand, and for what it will bring him in; and when he retires, nominates and appoints his successor. We may occasionally find some whose energies are apparently devoted to the general good, and who seem, as it were, destined to revolutionize and improve the prevailing order of things. Alas! too often do we find that their policy is based on selfishness—never a stable foundation; and, instead of becoming fixed stars, whose orbits can be determined, and their movements depended upon, they are but meteors having eccentric orbits, which occasionally dazzle us with their effulgence, and then disappear behind the "Milky Way."

The subject of procuring a Charter, with a view of conferring a higher degree or fellowship than the present one, on those who choose to apply for it, and are found qualified, is probably one of the most important that has ever engaged the attention of the profession.

It is admitted on all hands that the present Charter is notoriously defective. No better proof of this could be adduced than the remarks made by Mr. Helmore at the Annual Meeting, and which stand unchallenged and uncontradicted. "He knew," he said, "men of great respectability practising in the country without a diploma, and who were making large fortunes; showing that, after all, the successful practice of veterinary medicine depended more upon the man himself than anything the Royal College could give him." Very true, and exceedingly humiliating for the Royal College, which pretends to grant the degree and give an exclusive right to the title of veterinary surgeon, but has neither the will nor power to prevent any or every one from using it, should they think fit.

Without going into the question of the expediency of prosecuting pretenders, I would ask, Is it just and right that any one should be at liberty to assume a title that a number of men have procured a Charter empowering them, and them only, to confer? or, What can we think of the wisdom of such a body in securing such a right without the power, either in their corporate capacity or by delegating it to individual members or associations who may feel inclined to do so, of challenging or prosecuting pretenders? As a profession, we suffer fearfully, both in prestige and in purse, from the host of unqualified pretenders who hang upon us like so many parasites; and that the Charter confers no right or power to interfere with any one assuming the title of veterinary surgeon is only too palpable. Nor is it any use quibbling about the title of "veterinary surgeon," and M.R.C.V.S. that is considered by some as a higher title, and which no one can use but those who have passed the prescribed examination. The Charter proves that they are one and the same. Nor does the public know or care anything regarding such distinctions, but accepts the title of "veterinary surgeon" as the proper qualification of members of the profession.

It is somewhat tantalising, especially to members just started in business, on finding themselves surrounded by these professional parasites, to be told by the Secretary, to whom they have lately paid their ten guineas, "that there is no such name on the Register,"—a copy of which he may send, with the comforting announcement "that the Council can do nothing in the matter."

And, notwithstanding the acknowledged inability of the Council to protect the right to the title they have so lately conferred, they keep dunning it into our ears that we are indebted to them, or to it through them, for our position in society and in science; and that as a consequence of such elevation, we are in honour bound to put our hands in our pockets and contribute liberally in order that they may be enabled to buy or build more commodious and imposing premises to protect this useless document. Was ever an assumption more unfounded? I have a strong conviction that if ever I or any other member shall manage to rise in the social or scientific scale, it will be altogether independent of anything the Charter or the Council have done or can do for us. And that this conviction is pretty general, may be safely inferred from the small amount of support the "Building Fund" has received from the great body, or the "rank and file" of the profession.

The idea of building a palatial residence to put such a useless piece of parchment in, reminds one of the story told by the eastern traveller who, in exploring a magnificent temple, passed through superb porticoes and noble halls, to find a monkey enthroned in a little dark *sanctum* as god of the whole.

Nevertheless, the progressive tendencies of the age in which we live proclaim that the time is come when the Charter should be revised, and a provision made for granting higher degrees than that of membership; as also a penal clause to protect the right we already have, should any one feel aggrieved.

The Charter lately granted to the Royal Veterinary College, enabling it to confer fellowships and honorary degrees, is probably a step in the right direction, if rightly used. It is liable to be abused, however; and I think the Council of the University has erred in not making the possession of their diploma a *sine quâ non* to the bestowal or the acceptance of these fellowships and degrees. The almost secret way in which it was sought to be obtained, and the seeming consciousness of superiority and certainty of success manifested in all the proceedings, are rather ominous of evil. If it had been any of the Scottish schools that had made such an application, there would have been a greater furor in the Council-chamber. And if it should have the effect of raising the ghost of the Scottish Charter, and it be found stalking up and down Downing Street, demanding "Liberty, Equality, and Fraternity," there would be a few about 10, Red Lion Square in a cold shiver, if not *hors de combat*, before they got it exorcised.

It is a concession of the "Home Rule" principle, which could not be denied the other schools, should they see fit to apply for it. And if all the schools would confer degrees and fellowships, there would be fewer candidates for the university's diploma; for, depend upon it, students would be found who would be content with these degrees, and thus the evil sought to be averted would be intensified. But this only makes the necessity of improving the Charter more pressing and imperative, and which I hope will be one of the principal functions of your journal to promote.

The best thanks of the profession are due to Colonel Sir F. Fitzwygram, Bart., for his munificent gift, and for the interest he takes in all matters pertaining to the profession. The schools have certainly great reason to be grateful for the opportunity afforded them of testing their respective teaching powers by the admission of all students to the competition. It will give an impetus to a number of competitors they could not otherwise receive, and all will be benefited more or less by their exertions; while the schools, too, will be stimulated by the healthy rivalry which must ensue.

There is one feature of the examination, however, that does not seem to be quite in keeping with the intentions of the donor, nor the progressive tendencies of the times, and which seems to render the good that would otherwise arise from it to the profession at large—*nil*.

I refer to the secrecy maintained regarding the questions submitted to the competitors. From the high professional standing of the examiners, it is safe to infer that the questions propounded would be of an advanced type, and such as, if made public after the examination, would be suggestive, if not useful, to many members of the profession. Indeed, there is no other means of ascertaining what progress is being made in teaching, than by making public the questions proposed, and the results of the competition; and not only in this competition, but in the examination for the certificate of membership. The time is come, I think, when a written examination, as well as an oral and practical one, should be instituted, and the questions with the results published in the university's calendar, or the proceedings in Council after the examinations. Nor is such a course Utopian or without a precedent. On the contrary, nearly all the universities publish their examination papers annually in their calendars. And if we try to ape the medical profession in other matters, we might with propriety be imitators of it in this. Besides, I think it is calculated to throw more interest into the question of examination by giving it publicity, and would certainly be suggestive and instructive to those who have passed through the present ordeal. I would humbly suggest that the various schools should send in the questions to the Council, who could arrange and value them, and transmit them to the various secretaries for the use of the examiners, whose duties would be confined to the oral and practical; and thus a uniformity would be secured in the examinations.

The present Board of Examiners is undoubtedly composed of able and experienced men; but I do not suppose that they would regard themselves so well posted up in the minute details of anatomy, physiology, chemistry, or botany, as those whose duty it is to teach these. I refer to the members of it who are practical veterinarians, and not those whose business it now is to teach. And my suggestion refers more particularly to the time—not far distant, I hope—when the Board will be wholly composed of such; and thus an inducement will be afforded for studying higher, and raising and sustaining the standard of professional attainments.

The Council seems to have no official control of the Board of Examiners, as to raising or lowering the standard, at present; nor does it seem to have any report from them,—at

least, it is never made public,—but the simple statement as to how many appeared and how many passed. By giving publicity to such matters, the Council has everything to gain, and nothing to lose. Moreover, it is incumbent on the members of Council, as representatives of the profession, and as holding a high trust from the Crown, to let the profession and the public know how they discharge it.

The time is also opportune for trying to liberalise the constitution of the Council by altering the mode of election. Although we already possess universal suffrage in virtue of membership, not one-hundredth of the members residing in these islands ever attend the Annual Meeting or take any interest in the proceedings.

To remedy this, I would suggest that the election to the Council Board should be conducted by voting papers, in the same way as the universities return their Members of Parliament. A deeper and wider interest would thus be created, and members appointed more on their public merits.

Nor do I think it right or necessary that the Annual Meeting should be always held in London. Why not make it migratory, like the Royal Agricultural Society, or the British Medical Association, and hold the Annual Meeting in London, Edinburgh, and Dublin alternately?

I would beg still further to suggest that a point equidistant from the three capitals should be selected for the head-quarters of the university and official residence of the secretary, where all the students could repair for their degrees, and where they would be less under the professional wing, and no room for insinuations of favouritism towards the pupils of any school.

The old sacerdotal city of York would just meet the requirements, and where, in some of the old halls under the shadow of the Minster, they would be capped and gowned with an *éclat* befitting the occasion.

Meantime, and until this grand consummation be reached, we will do well to remember that much depends upon each one's personal efforts, and that the profession is just what every individual makes it. Let each try, then, to recognise his individuality in the elevation of the profession, and feel that the very best service we can render at this moment is to qualify ourselves as thoroughly as possible for the positions we expect to fill.

And let our aim and object be, not that we shall be disunited—not that we shall be broken and split up into wrangling and contending factions, but that we may be united—indissolubly and inseparably united; and being so united, we shall form a phalanx—an unbroken phalanx capable of repelling the attacks of foes from without and enemies from within; and that shrouding ourselves in the panoply of science, we may be able to show to the country and to the world that we are worthy of the position we seek.

I am, Sir, yours respectfully,

Market Deeping,
June 15th, 1875.

JOHN GERRARD,
M.R.C.V.S.

Communications, Letters, Books, etc., Received.

COMMUNICATIONS have been received from Professor Fearnley; Staff Veterinary Surgeon Collins; Hippochirurgus; D. C. Pallin; W. Hunting; W. Field, Junr.; W. Robertson; T. D. Broad; J. Hill; J. Gerrard; F. G. Baker, Junr.; T. Paton.

BOOKS: *Marey*, Animal Mechanics; *Cooke and Berkeley*, Fungi, their Nature, Influence, and Uses; *Vogel*, Lehrbuch der Physikalischen Diagnostik der Krankheiten; *Van Beneden*, Commensaux et Parasites; *Huxley*, The Anatomy of Vertebrated Animals; *Flower*, An Introduction to the Osteology of the Mammalia; *Köhne*, Allgemeinen Pathologie für Thierartze; *Flower*, Bits and Bearing Reins; *Wehenkel*, Elements d'Anatomie et de Physiologie Pathologiques Générales; *Lanzillotti-Buonsanti and Pini*, Dizionario dei Termini Antichi e Moderni delle Scienze Mediche e Veterinarie, parts i., ii.; Nouveau Dictionnaire Pratique de Médecine, de Chirurgie, et d'Hygiène Vétérinaires, vol. x.; *Zundel and D'Arboval*, Dictionnaire de Médecine, de Chirurgie, et d'Hygiène Vétérinaires, 4 parts; Dictionnaire Encyclopédique des Sciences Médicales, 3rd Series, Vol. ii.; *Burness and Mavor*, The Specific Action of Drugs.

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publishers, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Vauxhall Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

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